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ADAPTATION OF FORMS IN NATURE TO POTTERY DECORATION

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CHAPTER I

INTRODUCTION

From the time man began to make vessels from clay he has been decorating them for a great variety of reasons. Unsatisfied with the plainest or most obviously technomorphic surfaces, he has been refining and altering the external aspects of pottery for such purposes as identification, for religious or magical symbolism, to add elements of story-telling, or for the aesthetic enrichment of the forms.

The custom of many early civilizations was to place tools and household utensils in the tomb of the deceased to be used in the after-life. Many of these objects were made of clay and have survived until the present time because of the durability of fired clay and the protection of burial from weathering and vandals. The decorations found on these pieces have provided interested students with an insight into the development of each civilization. Although the meanings of most ornamentation are largely based on conjecture, and while most of the variations must have started with technical considerations, there are many of the motifs that are immediately identifiable as having been derived from nature.

Since the time of the Industrial Revolution design has been sacrificed in the modification of forms and

decorations for expediency in mass production. Much of the pottery seen on the market today no longer exhibits a clay quality. Industrial designers no longer work directly with the material, and their decorations often do not fit the forms. Therefore, the role of the artist-potter is to explore the possibilities of making his work show qualities inherent to the clay. Potters of today can benefit from what has been accomplished in the past. The ancient works must be viewed with an open mind to see how the problems of decorating were solved.

This potter felt that by making a study of the work of the past he could discover how the early craftsmen have successfully solved their problems of decoration. Since natural forms have always formed a basis for design, the potter felt that it would be profitable to make a study of the "Adaptation of Forms in Nature to Pottery Decoration." This problem was discussed by the potter with Richard Fairbanks, associate professor of art, who is in charge of the pottery classes at Drake University. They found that the problem consisted of studying the patterns based on botanical and zoological forms which were successfully used on historical wares, then seeking new ways to utilize the same or similar sources from nature, and also seeking new and untried patterns in nature.

CHAPTER II

REVIEW OF DECORATIONS ON HISTORICAL WARES

Since most early cultures have used decorative motifs based on patterns of nature, there is an abundance of material which can be studied. However, this study will include only the more outstanding or typical examples of patterns used by various civilizations.

No one group of people can be credited with the invention of pottery. As the early people began to leave their nomadic life the development of pottery began, almost accidental in origin. The very earliest pieces were probably reed baskets lined with clay to strengthen and waterproof them. When such a basket was accidentally set near a fire, it was noticed that the clay hardened. If this is true, then the basket texture in the clay was probably the first type of decoration. Such pieces have been dated no less than 8000 years ago in the Neolithic and Early Bronze ages. The spiral and double spiral were also used frequently in decorations. Examples of pottery from this period have been found in China, South Russia, Egypt, and both Americas.¹

¹Glenn C. Nelson, Ceramics (New York: Holt, Rinehart and Winston, Inc., 1960), pp. 152-153.

I. MEDITERRANEAN PRE-GREEK WARE

During the Mediterranean Pre-Greek era there was much progress made in the field of pottery. The Babylonians and Egyptians were using glazes, and work with the potter's wheel was begun. The Etruscans, 1000 to 200 B.C., used motifs of flowers and horses in decorating but are better known for their ceramic sculpture.¹

The Cretans, also known as the Aegeans or Minoans, made much advancement in pottery as it took on an importance in the realm of commerce for them. In the work of the Cretans, a tendency toward the use of naturalism in decoration is seen. "Motifs were derived from sea life such as dolphins, seaweed, or the octopus."² Figure 1 shows the famous Octopus bottle of typical Minoan design from Crete, 1600-1500 B.C.³ White lily blossoms and the olive branch were also used as well as other botanical and animal forms. "Aegean art is directly expressive of an active people intimate with nature."⁴

¹Ibid., pp. 156-157.

²Helen Gardner, Art Through the Ages, ed. Sumner McK. Crosby (fourth edition; New York: Harcourt, Brace and Company, Inc., 1959), p. 102.

³Nelson, op. cit., p. 156.

⁴Gardner, op. cit., p. 104.



Figure 1. Octopus bottle showing typical Minoan design. Crete, 1600-1500 B.C. (Copy from Glenn C. Nelson, Ceramics (New York: Holt, Rinehart and Winston, Inc., 1960), p. 156.)

II. THE GREEK PERIOD

The Greeks, or Hellenes, seem to have originated from a mingling of Aegean people and Indo-European invaders. The first of these formed the Mycenaean civilization on the Peloponnesos about 1600 B.C.¹ The work of the Mycenaeans shows much Aegean influence with birds, olive branches and other natural forms being used. Figure 2 shows a late Mycenaean krater, a bowl used to mix wine with water, decorated with a bull and a bird. The decoration was made to fit the space completely. The treatment of the space shows imagination which is also seen in the textures and dots used in the eye and tail of the bull.²

Then, as one looks at the true Greek period, one sees different eras which have been called the Geometric period, 1100-700 B.C.; the Orientalized or Corinthian period, 700-600 B.C.; the Black-figure style, 600-530 B.C.; the Red-figure style, 520-400 B.C.; and the White ground and Florid style, 400 B.C. The Greek art of pottery flourished in its beginning but it degenerated in quality as its purpose became solely a surface for pictorial decoration.³

¹Ibid., p. 106.

²Marguerite Wildenhain, Pottery: Form and Expression (New York: Reinhold Publishing Corporation, 1960), pp. 103-106.

³Gardner, op. cit., pp. 132-138.



Figure 2. Mycenaean krater. (Copy from Marguerite Wildenhain, Pottery: Form and Expression (New York: Reinhold Publishing Corporation, 1960), Plate No. 64, p. 103.)

During the Geometric period the Greeks adopted and expanded the production of pottery for trading from the Aegean culture. The Greeks did not use the flowers or other organic forms of the Cretes but used abstracted forms and "delightfully stylized figures."¹ Many of their wares were decorated with bands of geometric motifs and human figures and occasional stylized natural forms. The ware was generally tan with brown slip-like decoration. Figure 3 shows a detail from a Dipylon styled Geometric amphora, a general storage jar. This drawing shows a funeral procession. "Though the drawing is primitive and the figures are symbolic, the decorative quality is far more effective than in later, more naturalistic drawing."² They later became more concerned with the narrative and physical appearance of the figures than with their decorative qualities.

The Greek botanical patterns were quite naturalistic, and in most of them the plant can be recognized. The most simple form is too conventional to be classed as any type of plant. This ornament was begun in the early Geometric period but is used more frequently in the later periods. Figure 4 shows this ornament as it would be found around the

¹Nelson, op. cit., p. 158.

²Helen Gardner, Art Through the Ages (third edition; New York: Harcourt, Brace and Company, Inc., 1948), pp. 147-148.



Figure 3. Detail from Dipylon styled amphora. Greek Geometric period. (Copy from Helen Gardner, Art Through the Ages (third edition; New York: Harcourt, Brace and Company, Inc., 1948), p. 148.)

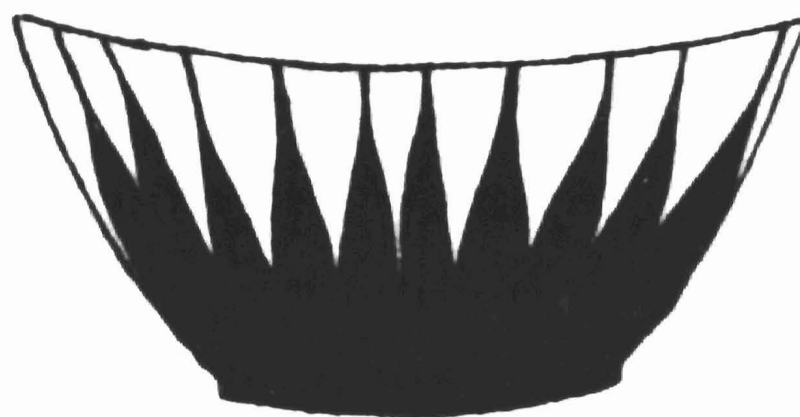


Figure 4. Radiating leaves found around base of Geometric styled vase. (Copy from Arthur Lane, Style in Pottery (London: Oxford University Press, 1948), Plate 5, p. 23.)

base of a vase with the leaves radiating from the foot, pointing upward. This was used on some Geometric styled pieces.¹

Then, as the Greeks began to expand their trading, some evidences of influences of the Near East are seen in the pottery. In this period, known as the Corinthian or Orientalized period, influence from Assyria is seen in the "rows of animals, winged beasts, and rosettes."² The lotus flower or bud is of Oriental origin but was used by the Egyptians and it came to the Greeks from Egypt. The lotus flower and bud first made its appearance in Greek vase painting during the pre-Christian 7th century and was used in a formal manner. On some vases the lotus flower is used as a frieze with alternating open flowers and buds as shown in Figure 5.³ In the Corinthian and early Black-figure wares the lotus flower is combined in different ways with the palmette and tendrils for ornamentation of necks, under handles, or above panels. Figure 6 shows a symmetrical arrangement of palmettes and lotus flowers.⁴

¹Arthur Lane, Style in Pottery (London: Oxford University Press, 1948), p. 23.

²Helen Gardner, Art Through the Ages, ed. Sumner McK. Crosby (fourth edition; New York: Harcourt, Brace and Company, Inc., 1959), p. 134.

³H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 224-225.

⁴Ibid., p. 227.

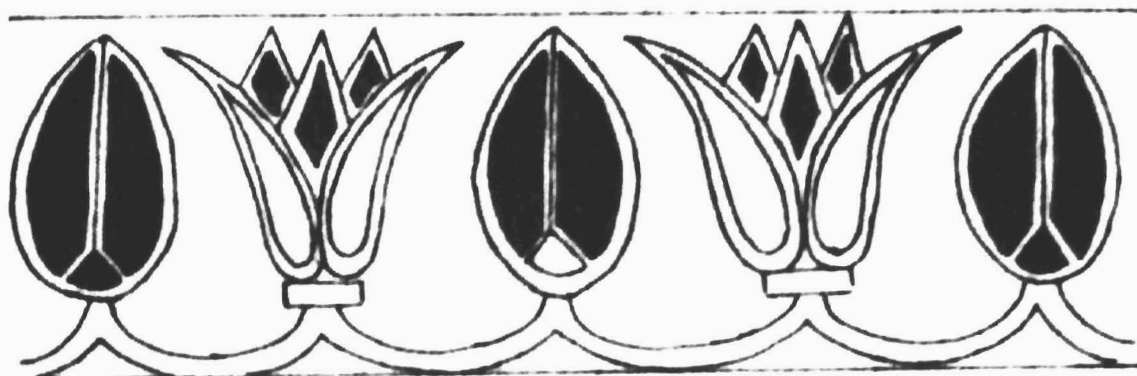


Figure 5. Lotus flowers and buds. (Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 225.)

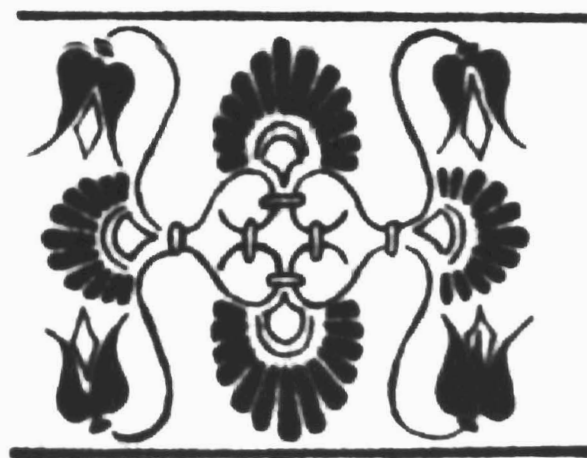


Figure 6. Palmettes and Lotus Flowers. (Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 227.)

The Greeks now became mainly concerned with their own interests and the decoration of the pottery shows the humanistic preoccupation at the expense of the decorative geometric motifs which had been used. By the 6th century B.C. the Black-figured ware was the most prevalent. In the early part of this period the vases were decorated with concentric bands of human and animal figures. "These are painted in a brownish-black glaze with touches of white or purple on the natural reddish clay of the background."¹ Although this pigment is here referred to as a glaze, it is not considered a true glaze by others. This potter feels that it is a pigment as is stated by Arthur Lane:

From the seventh to the fifth centuries B.C. the Greeks refined the old earthenware materials to the limit of what was possible, and in particular developed a glossy black pigment produced by the differential action of fire on a wash of clay disintegrated into its finest elements by an admixture of potash. This was not a glaze; it did not melt in the fire; and it retained the sharpness of the painter's touch. Glaze should soften painting on or under it; it always softens the outline of a pot by filling in the angles and depressions. Perhaps the early Greeks would have rejected the sensuous attractions of glaze even had it been available. For their own intellectual temperament demanded the utmost clarity of form and drawing.²

Pictures on the vases showed mythological scenes, the Calydonian hunt, funeral games, and wedding processions.

¹Helen Gardner, Art Through the Ages, ed. Sumner McK. Crosby (fourth edition; New York: Harcourt, Brace and Company, Inc., 1959), p. 135.

²Lane, op. cit., p. 19.

Eventually the white and purple were almost eliminated in the true Black-figure style. The pigment which was used was velvety jet-black and the pieces usually had the figure in black against the red background on a single banded panel. "The figured were painted in this glaze on the natural red clay and the details incised with some hard pointed instrument to expose the red beneath."¹

The leaf as shown in Figure 4 is usually associated with this period. It was used on the larger vases which have a more-or-less definite stem but is not found on smaller vases.

The ivy leaf was begun to be used as a decorative pattern in the middle of the 6th century B.C. Single leaves are found on the necks of Black-figured lekytho (oil flasks). Double rows of small ivy leaves occurring as borders are found on the Black-figures hydriae (water jars), kraters (bowls for mixing wine and water), and on the oenochoai (wine jugs). Figure 7 shows the double row patterns of the ivy-wreath of the Black-figured period.²

On Southern Italian vases the ivy-leaf pattern is treated much more naturalistically with tendrils and berries, as shown in Figure 8.³ These are found on the necks of large

¹Helen Gardner, Art Through the Ages, ed. Sumner McK. Crosby (fourth edition; New York: Harcourt, Brace and Company, Inc., 1959), pp. 135-136.

²Walters, op. cit., p. 222. ³Ibid.

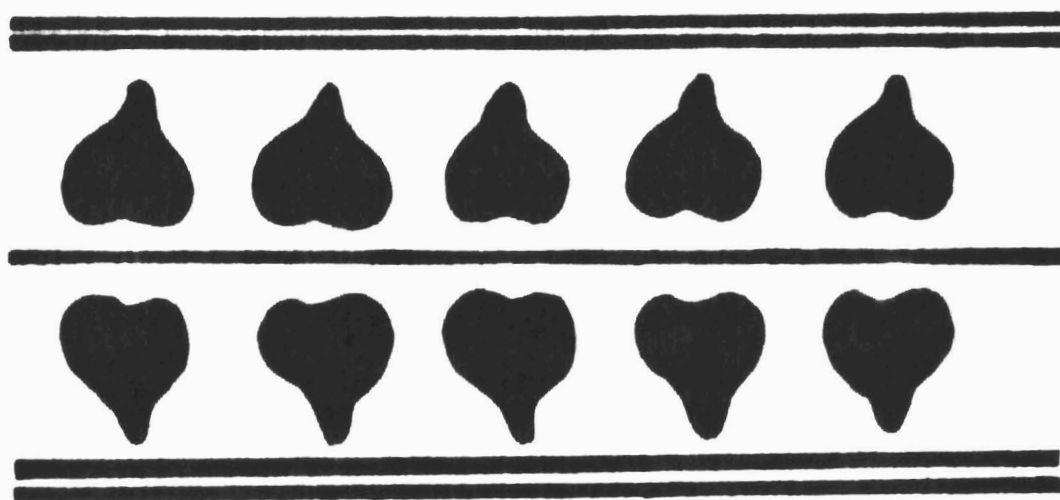


Figure 7. Ivy-wreath as found on Black-figured ware. (Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 222.)

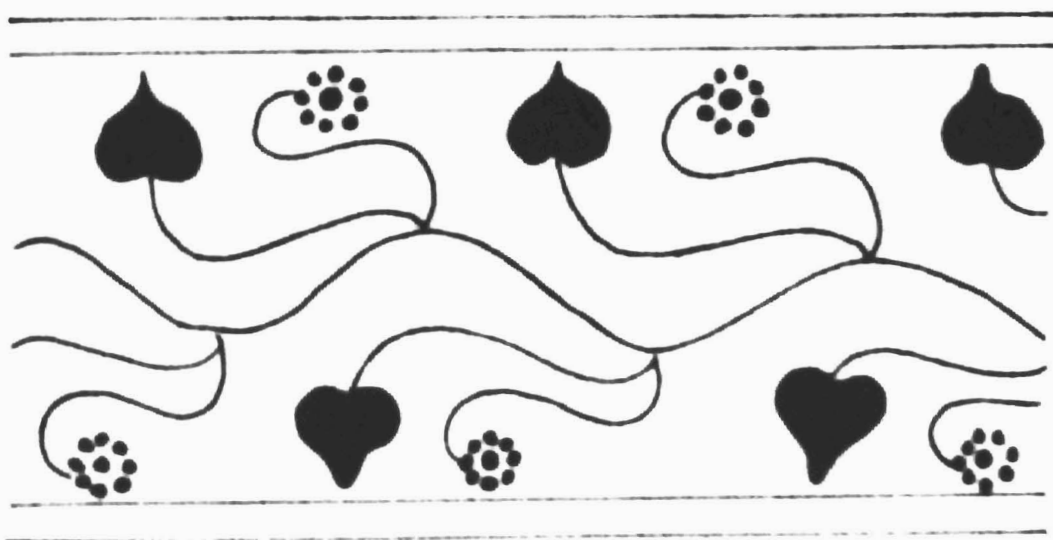


Figure 8. Ivy leaf pattern with tendrils and berries as used on South Italian vases. (Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 222.)

kraters and forming the border on the inside lip of vases.

In the Black-figured period the pieces had a better feeling for form and the decorations seemed to form an essentially flat pattern which stays on the pot better than those of the periods to follow. In the Red-figured period there seems to be a conflict between the art of ceramics of shaping the clay and decorating it suitably and that of the painter portraying action, depth, or space.

About 520 B.C. the Black-figured ware went out of style because the Greeks found they could achieve greater detail by using red figures against a black background. "The natural reddish clay was first covered with a red slip and polished. The artist then painted, with a fine brush, the details of his design in black and finally covered the background with black glaze."¹ The figures now seem to shine forth against the black background. The draftsmanship was often excellent; however, "the designs were not integrated with the curved surface of the vessel."²

The double rows of ivy leaves were carried over into this period. The laurel-wreath form was a regular decoration in the late Red-figured period. It was used on the necks of

¹Helen Gardner, Art Through the Ages, ed. Sumner McK. Crosby (fourth edition; New York: Harcourt, Brace and Company, Inc., 1959), pp. 136-137.

²Nelson, op. cit., p. 160.

bell-shaped kraters and wide-bellied amphorae. "These wreath-patterns on the late vases, it should be noted, are either treated in red-figure technique or painted in opaque white on the black varnish. They are often drawn with great care and accuracy."¹ Figure 9 shows the laurel-wreath design as it was used on Red-figured South Italian vases.²

The lotus buds, as used on early Red-figured amphorae and hydriae and in the column-handled kraters, are shown in Figure 10.³

Another variation shows the last of the Greek vase painting in the 5th and 4th centuries B.C. The figures were on a white background in softer colors and scarcely visible. By the 4th century the Florid style had evolved. This style shows a marked decadence with "complex backgrounds, over-crowding of the panel, and use of colors. The scenes depicted became sentimental and comic."⁴

III. CHINESE POTTERY AND PORCELAIN

Various types of pottery wares have been found dating from periods earlier than the Han dynasty, 206 B.C. to A.D. 220. However, the decorations used were of geometrical origin rather than of organic. The string-impressed designs

¹Walters, op. cit., p. 223.

²Ibid. ³Ibid., p. 226.

⁴Nelson, loc. cit.

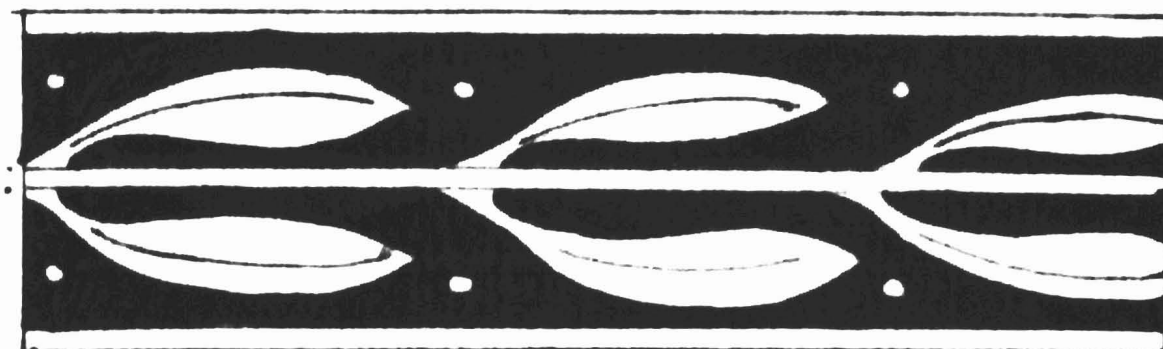


Figure 9. Laurel-wreath as used on Red-figured ware.
(Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 223.)

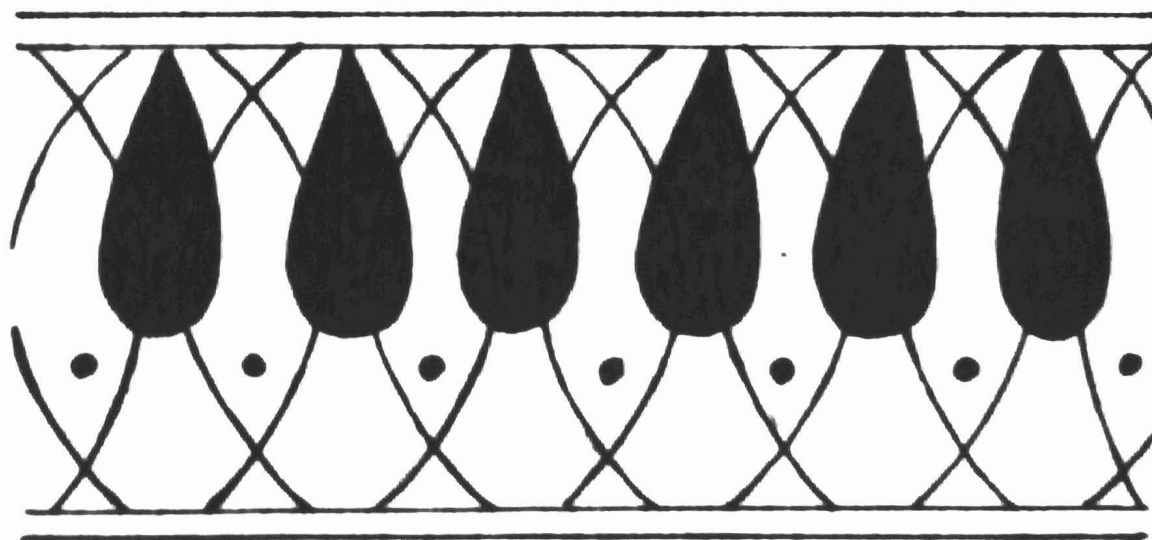


Figure 10. Lotus buds as used on Red-figured ware.
(Copy from H. B. Walters, History of Ancient Pottery (London: John Murray, Albemarle Street, W., 1905), II, 226.)

were also common during the Shang, 1766-1122 B.C., Chou, 1122-249 B.C., and Ch'in, 249-207 B.C., dynasties.¹

The first use of natural forms occurs during the Han dynasty. The adoption of low-fired lead glaze is credited to this dynasty. The common pieces found are either red or slate-gray earthenware covered with a lead glaze made green with copper. A brown or yellowish glaze is also common. The pieces were decorated with motifs of flowers, birds, fishes, dragons, galloping horses, lions, and hunting scenes. These were applied by stamping, carving, or by using moulds. They were used as banded decorations, over-all designs, or were carved into the center of the bowl.² Figure 11 shows a roof-tile of unglazed earthenware with a carved phoenix from the Han period.³

A type of stoneware has been found dating to the Han period which is called proto-porcelain. The glaze has been found to be a true feldspathic glaze normally olive-brown in color. The body of the ware is gray with white or red slip

¹Warren E. Cox, The Book of Pottery and Porcelain (New York: Crown Publishers, 1947), I, 21.

²Judith and Arthur Hart Burling, Chinese Art (New York: The Studio Publications, Inc. in association with Thomas Y. Crowell Company, 1954), pp. 129-133.

³William Bowyer Honey, The Ceramic Art of China and Other Countries of the Far East (London: Faber and Faber Limited, 1946), p. 33.



Figure 11. Carved phoenix on unglazed tile, Han Dynasty. (Copy from William Bowyer Honey, The Ceramic Art of China and Other Countries of the Far East (London: Faber and Faber Limited, 1946), Plate 5b.)

coverings or washes. The decorations on this ware were usually combed or incised. Some stylized forms of birds' heads are found incised in a banded decoration. Incised decorations of fishes are also seen on some wares.¹

Following the Han period, during the time of the Six Dynasties and Sui dynasty, some technical advances were made in pottery. New glazes were prepared and porcelaneous vases and bowls with a fairly high proportion of kaolin were made.²

There was a great "outpouring of creative energy in literature, painting, and all the arts"³ during the T'ang dynasty, 618-907. Much of the ware remaining from this era is tomb-ware. There was an advancement made in technique. They used painted enamel decorations of different colors by outlining the areas with cut channels to keep the glazes from running into each other.

A wide variety of technique is shown in the range of wares from soft white or harder red pottery of the tomb-wares to a light-colored lead glazed earthenware. This earthenware was opaque but did approach the hardness of porcelain. They also worked with feldspathic stoneware with colors ranging from brown to a fine white and green. Many rich colors were also used in the lead glazes. Although the

¹Ibid., p. 36.

²Burling, op. cit., p. 134.

³Ibid.

lead glaze was used during the Han period, it seemed to be abandoned during the period of the Six Dynasties and was used again during the T'ang period in a wide range of colors. A rich leaf-green, amber-yellow, violet, and brown were common and dark blue was sometimes used.¹

A very common decoration which appeared inside dishes was the rosette as shown in Figure 12. The figure shows a "conventionalized flower design in white, green, and amber-colored glaze. The center pattern is incised under the glaze."² Stylized figures of flowers and birds were also used with incised outlines being used to define areas of colored glaze. Some freely drawn designs of flowers are seen. Incised peonies, an emblem of good fortune, and foliage were used. The chrysanthemum stands for good pleasure and cheer. The lotus flower, symbolical of the creative power in the Buddhist religion, was used showing some approach to naturalism. "Two lotus flowers on a single stem denote a happy marriage."⁴ Much of the ornamentation was moulded and applied in relief. Palm leaves, tigers,

¹Honey, op. cit., pp. 48-51.

²Fujio Koyama and John Figgess, Two Thousand Years of Oriental Ceramics (New York: Harry N. Abrams, Inc., 1961), p. 53.

³J. F. Blacker, Chats on Oriental China (New York: Frederick A. Stokes Company, 1917), pp. 302-305.

⁴Burling, op. cit., p. 350.

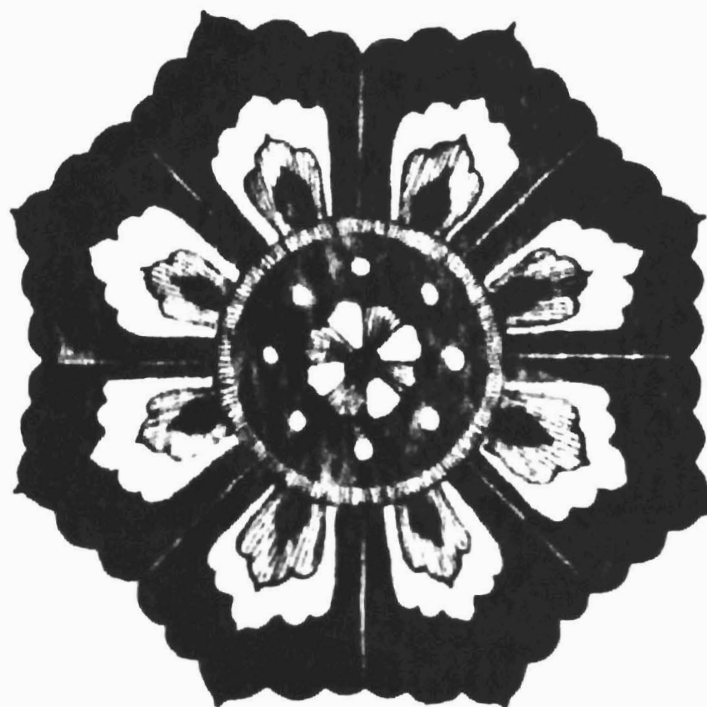


Figure 12. Rosette in center of dish, T'ang Dynasty.
(Copy from Fujio Koyama and John Figgess, Two Thousand Years
of Oriental Ceramics (New York: Harry N. Abrams, Inc., 1961),
Plate 21, p. 52.)

fishes, and scenes from Buddhist, Confucian, and Taoist lore were used. The horse, "symbolizing all that was free, proud, and noble,"¹ was a favorite decoration.

True porcelain of a very refined white quality was developed during the T'ang period. Decorations of vine-branches, other foliage, and dancing figures, birds, and fish were applied in relief.²

The period of the Five Dynasties, 907-960, shows a type of porcelain with an olive-green glaze and a decoration often of leaves and flowers finely incised into the body as an underglaze decoration.³

The ceramic wares of the Sung dynasty, 960-1279, "are characterized by an elegant simplicity and great vigor,"⁴ and they communicate a "feeling of serenity and harmony."⁵ During this period the artists gave more admiration to the material itself and they used a slight amount of decoration, keeping the ornamentation in harmony with the form. They used low-toned colors, generally preferring the simplicity of a single color.

The celadon ware from the town of Lung-ch'üan in

¹Ibid., p. 135. ²Honey, op. cit., p. 54.

³Burling, op. cit., p. 139.

⁴Koyama and Figgess, op. cit., p. 63.

⁵Burling, op. cit., p. 140.

northern China is probably the best known type of Sung ware. The gray to grayish-white body, which was burnt red on the parts of the foot left exposed, was usually glazed an olive-green shade. The early wares were decorated very delicately and sparingly with lotus petals, or other formal patterns of leaves and petals carved on the outside. Others had motifs in moulded relief of dragons, tigers, or fishes. The celadon ware was often made for export.¹

Later in the Sung dynasty, a delicate porcelain was made at Lung-ch'üan. This was decorated in various ways:

1. Carving, or etching, on body before applying the glaze.
2. Decoration in relief by pressing the soft paste into a mould before glazing.
3. Mould decoration which is left unglazed so that it will turn red with the heat. This results in the green celadon dishes with red fishes, dragons, or flower sprays, in relief.
4. Brown patches caused more or less accidentally by flaws in the glaze or by excess of iron in certain places. This "spotted" celadon is highly valued.²

Northern Ting Chou ware is considered by many to be the finest of all porcelains. It is very translucent and pure white. It has a thin clear glaze with restrained decoration. The designs used were either in free drawing done in bold strokes with an etching tool or moulded or stamped. Formalized flowers and leaves were stamped; ducks, fishes, and floral designs were used in the drawings.

¹Ibid., pp. 142-143.

²Ibid., p. 144.

Southern Ting ware also was a very pure white although some colors were used. Incised lilies done in flowing lines contrasted with scalloped lines in an over-all pattern were used as decoration.¹

Decoration by means of painting with a brush was first used regularly during the Sung period. This method was often used at Tz'u Chou to decorate the porcelaneous stoneware. A coat of white slip was first applied and then a coat of transparent glaze and the freehand decoration applied in a shiny brown or black pigment. The design was simple using a minimum of strokes. Petals and leaves were used frequently. Other colors were also used in overglaze painting. Towards the end of the dynasty a blue or green glaze was applied over the painting.² Figure 13 shows a boldly painted design of flowers and fern-like foliage in black under a transparent green glaze. Sgraffito decoration was also used. In this method a decoration was cut through a layer of white slip under the glaze. It appears that the slip was applied by dipping as shown by the uneven line along the unglazed foot. In some fine lines were incised, in others the background area was cut away, while in others wide areas of the design were cut away. Bamboo stems were

¹Honey, op. cit., pp. 78-79.

²Burling, op. cit., p. 150.



Figure 13. Flower and foliage under green glaze, Tz'u Chou ware, Sung Dynasty. (Copy from R. L. Hobson and A. L. Hetherington, The Art of the Chinese Pottery from the Han Dynasty to the End of the Ming (New York: Alfred A. Knopf, MCMXXIII), Plate LXXXV.)

used to cut small circles and sharp tools were used to scrape or incise. Flowers, leaves, fishes, and dragons were motifs that were commonly utilized. The motifs were used in banded decorations, spot designs, and over-all patterns.

During the Yüan Dynasty, 1280-1368, there was a "marked deterioration of glaze, form, and technique as compared with their counterparts of the Sung period."¹ But, some new ideas of decoration and glazing came from Persia. The blue and white porcelain was being perfected. The peony was a common pattern done in relief.

"The Ming dynasty produced the fullest flowering of ceramic art of all time."² Bright colors were used, painted decorations were bold and freely done without the restraint of realism. They began to work with very large pieces of pottery.

The Yung Lo porcelains are delicate, pure white dishes. This ware was so thin it appeared to consist of two transparent layers of glaze and was referred to as "bodiless." Sometimes they were decorated with patterns incised or painted in white slip under the glaze so that the decoration was almost invisible and is sometimes called a "secret decoration."³ Dragons, floral designs, and lotus leaves

¹Koyama and Figgess, op. cit., p. 117.

²Burling, op. cit., p. 153. ³Honey, op. cit., p. 107.

were common motifs.

The use of an underglaze copper-red pigment was new to this period during the reign of Hsuan Te. The underglaze color must be able to withstand the intense heat of the feldspathic firing. This they found could be done by using copper for red. Red underglaze fishes and peaches were used mainly on stem cups. The stem cup shown in Figure 14 is of pure white porcelain enhanced by the brilliant red fish painted under the glaze.¹

An underglaze blue decoration using cobalt was also perfected during this time. The drawing was bold and free and the forms were finely balanced. The glaze appears very rich and thick. Dragons, birds, flowers and fruits, lions, and the Three Friends--the pine, plum, and bamboo--were used in decorating.² These three were called the friends because all remained green during the cold. They symbolize longevity, harmony, and faithfulness even in adversity. The bamboo denotes dependability and endurance because it bends but does not break.³

During the reign of Ch'êng Hua the porcelain was of

¹Arthur Lane, Style in Pottery (London: Oxford University Press, 1948), p. 22.

²Burling, op. cit., p. 155.

³Blacker, op. cit., p. 301.

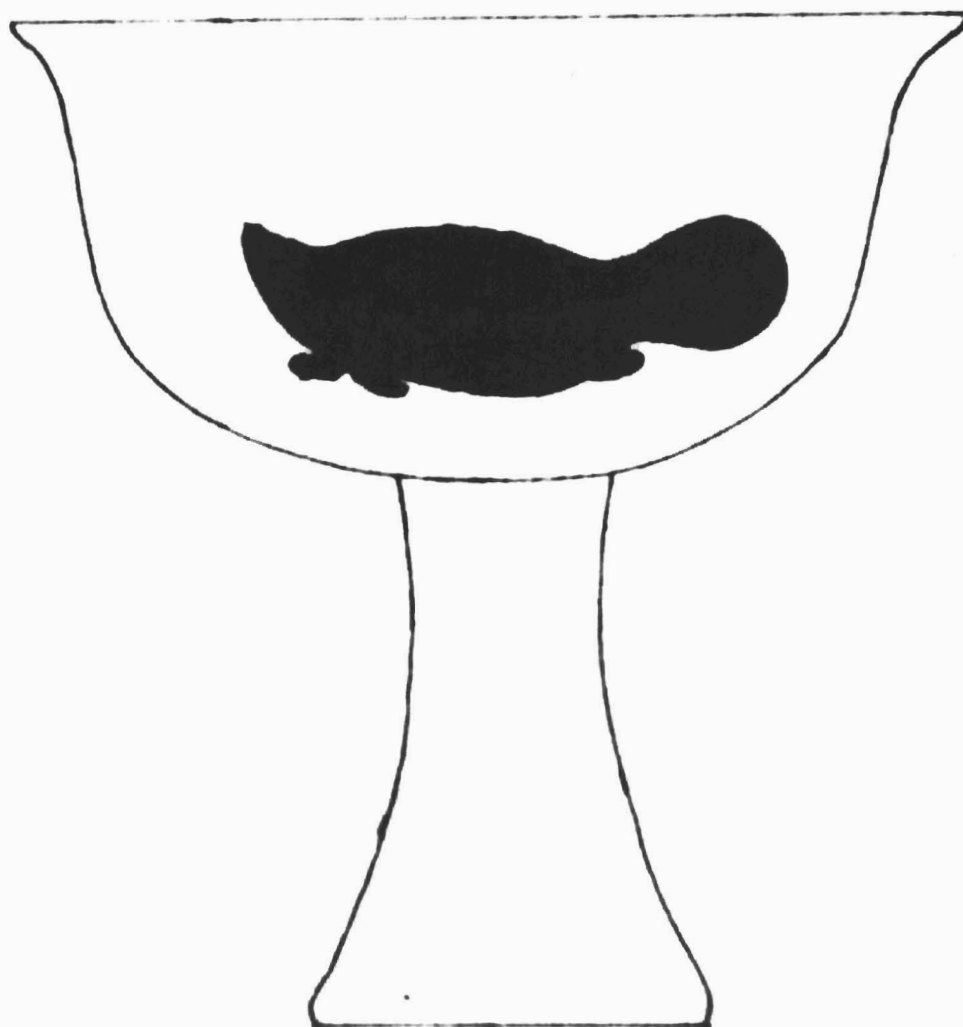


Figure 14. Stem cup with copper-red fish, Ming Dynasty. (Copy from Arthur Lane, Style in Pottery (London: Oxford University Press, 1948), Plate 18.)

very fine quality. The decorations were done in bold, free strokes with the brush. Grapes, flowers and insects, chickens, lotus blossoms, and tulip and lily-like flowers were common designs.

"Painting in contrasted colours" was another style which was developed during this period. The name comes "with reference to the opposition between the soft underglaze blue and the shining red, yellow, apple-green and other enamels, which were applied in thin, even, almost translucent washes over underglaze-blue outlines."¹ Tiny cups decorated with fighting cocks were known as chicken-cups.

Multicolor decorations are also well known. Three-color decoration is often used over a slip of one color. The decoration was applied by carving or moulding, tracing the outline with a sharp point, or by outlining with threads of clay to keep colors from running. Five-color designs were also used. Flowers, trees, children, lions, horses, tigers, or sea-horses were used as motifs.

Besides painting, other processes of decoration were used on porcelain, including embossing, chiseling, and openwork carving. In the latter part of the dynasty, a very fine type of fretwork carving, which was designed to show off the great skill of the potter, was given the name of "kuei kung" or devil's work.²

¹Honey, op. cit., p. 123. ²Burling, op. cit., p. 160.

There was a marked decline of the creative arts during the latter part of the Ming period, leading into the Ch'ing dynasty, 1644-1912. Later, however, ceramic art again flourished as some new glazes and types of decorations were used. The blue and white ware of the K'ang Hsi period exhibits beautiful colors but, in composition, "it must be admitted that the pictorial designs are often ill-adapted to the forms they decorate."¹ Blossoms and branches, landscapes, dragons, and birds were motifs for drawings; the plum, lotus and magnolia were favorites. The decorations were very well done technically and the drawings were perfect. But, there was no feeling in the designs. The wares were factory made with specialists for each step of making and decorating the pot. The prunus jars, hawthorne jars, and ginger jars are examples of the flower bedecked wares. They were often decorative but few are great works of art.²

IV. EARLY ISLAMIC POTTERY

Islamic pottery had its real beginning around the ninth century A.D. But, much of the basis for their ornamentation came from Umayyad art. The Umayyad Caliphs,

¹Honey, op. cit., p. 147.

²Warren E. Cox, The Book of Pottery and Porcelain (New York: Crown Publishers, 1947), I, 539-541.

religious leaders, invited artists from all regions to come to Syria to decorate the mosques and palaces during the sixth century. Artists from the Mediterranean brought naturalistic decorative styles of animals and coiling vine or ivy. The style of Assyria and Babylon was a formal art using abstract trees, palmettes and rosettes.¹

The Islam artists fused these two styles but preferred the formal. Arthur Lane described their style as:

The vine, for example, was first trained into irregular loops, each containing a leaf and a grape-bunch, sometimes one superimposed on another; then it grew pine-cones and a medley of elongated leaves not its own; at a later phase, especially in the eleventh and twelfth centuries, it grew fantastic blooms that distantly resemble a palmette. The spiral-motive so common as a background on Islamic pottery only betrays its origin as a vine by its habit of growth and the little coiled tendrils that spring at intervals along its stem.²

The artists would start with a design, such as a half-palmette, and expand it into any direction by drawing stems from it until it covered an entire surface. There was an early Moslem injunction against the use of living creatures as decorative forms. Therefore, much of the work shows decorations with curved lines and symbols from their writing.

Imported ceramic wares from China were highly prized by the Islamic people. The potters at first sought to imitate

¹Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), p. 5.

²Ibid.

the Chinese ware but later devised their own solutions to the secrets of the Chinese porcelain. The first contacts with Chinese ceramics was during the ninth century in Mesopotamia.

Various types of early wares have been found at Samarra. The unglazed wares were stamped, incised, moulded, or painted with designs of Kufic writing (a favorite source of ornamentation on all Islamic pottery) and animals.¹ The lead-glazed sgraffito wares used half-palmettes with flowing lines and splashes of colored glazes. Lead-glazed relief-ware show animals and birds, and half-palmettes done with green, brown, and purple glazes.²

An imitation of T'ang porcelain was impossible with the ordinary clear lead glaze over a white slip. However, the Mesopotamian potters found a solution to this problem by mixing tin-oxide with a modified lead glaze, the suspended particles of tin-oxide producing a perfectly opaque white ware. They went on to paint on the white surface using cobalt-blue, manganese-purple, copper-green, and antimony-yellow. Half-palmettes, rosettes and fern-like leaves were common motifs. Figure 15 shows a tin-glazed bowl with the half-palmette and rosette design done in blue.³

¹Cox, op. cit., p. 297.

²Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), p. 12.

³Ibid., p. 13.

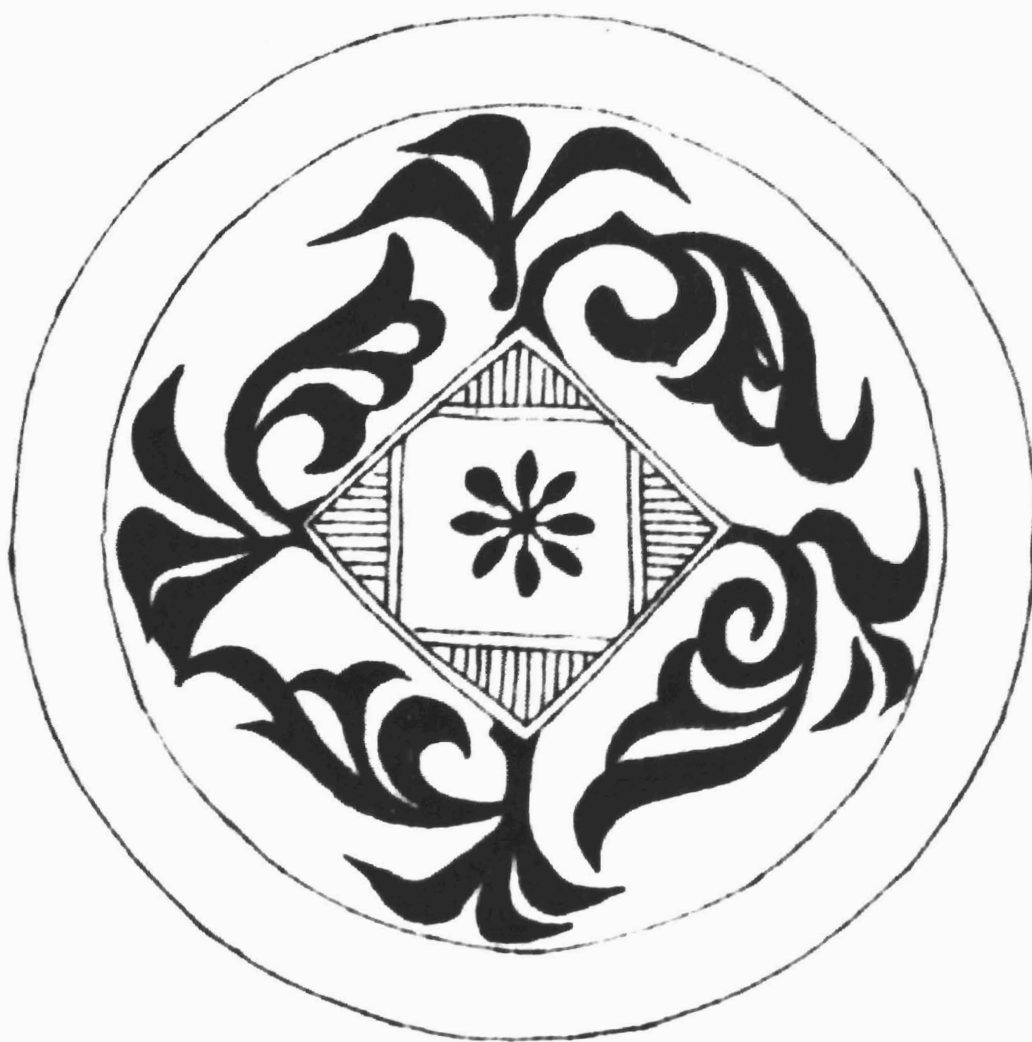


Figure 15. Half-palmette and rosette motif on tin-glazed Mesopotamian bowl. (Copy from Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), Plate 8A.)

Mesopotamian potters also experimented with the technique of luster-painting during the ninth and tenth centuries. In this process a pigment, consisting of sulphur compounded with silver-oxide for yellow stain and copper-oxide for the lustrous element, is mixed with an earthy material such as red ochre. This mixture is then painted on a glazed surface which has been fired once. It is then lightly fired in a reducing kiln and the metallic elements will be rendered a lambent film. The procedure is difficult, and many irregularities often occur. The Islamics used the technique with such motifs as half-palmettes and random foliage and cocks in wreaths. However, the designs had no formal basis and were merely the medium through which the luster could be shown.¹ Animal figures began to appear later against a foliage background. The figures were large in the center of the bowl but were not representations of any specific type of animal. The lines are curvilinear. One such animal form is shown in Figure 16 as it was used on a plate decorated with luster-painting in Mesopotamia.

The painted wares of eastern Persia of the Samarkand region show half-palmettes, stylized birds and animals, and radiating stalks and flowers as decorations. The Samarkand potters found that the painted decorations would stay in

¹Ibid., pp. 14-16.

place if the coloring agents were mixed with a paste of fine clay slip. This prevented the decoration from running when the fluid lead glaze was applied over it. White, tomato-red, and purplish-black were common colors.¹

There was a turning point in the history of Islamic pottery at the twelfth century. The potters were again impressed with the fine quality of Chinese porcelain. The potters of Persia from the Saljuq times made a fine white bodied ware by using an artificial paste made of powdered quartz-pebbles, a frit (fusing agent) made of this powder melted with potash, and white plastic clay.² Animal figures, birds, and foliage with flowing lines in over-all patterns were carved into this ware. The outlines were often filled in with glaze. A carved bird with foliage background is shown in Figure 17 as it was used on a Saljuq bowl.

During the last quarter of the twelfth century there were many technical advances made in Persia. A process named minai or enamel, the application of overglaze enamels, was introduced. In this technique, parts of the design were painted on or under the raw glaze and then fired. Black outlines were then added and fixed in a lower temperature firing. New colors were possible and the painting could be

¹Ibid., p. 17.

²Ibid., p. 32.



Figure 16. Animal on luster-painted plate, Mesopotamia. (Copy from Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), Plate 12A.)



Figure 17. Carved bird with foliage background on Saljuq bowl. (Copy from Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), Plate 41B.)

more exact. They also began to use underglaze colors which could be painted with a brush. Some natural-appearing plant motifs were painted in underglaze colors. In Egypt paintings of animals and birds with foliage were being done in black silhouette under a transparent glaze in blue, purple, turquoise, or colorless. In Mesopotamia motifs of hunting and battle scenes, birds, and tree and flower patterns were common. Figure 18 shows two birds as they were used on a plate in black painting under a turquoise glaze.¹

The Islamic potters in general show a sensitivity in adapting their decorations to the shape of the pottery.

Glenn C. Nelson has written the following concerning their work:

In spite of the intricacy of their designs, the overall effect is seldom crowded or disorderly. The highest development of lusterware is an achievement of Islamic potters, although luster glazes were also used at an early period in Egypt. The metallic sheens of gold, silver, and purple fitted perfectly into the elaborately decorative nature of their work.²

V. ANCIENT AMERICAN POTTERY

Pre-Columbian pottery is entirely different from the works of the Old World. One main factor in the difference is that the potter's wheel was unknown in the New World, and

¹Ibid., pp. 44-46.

²Nelson, op. cit., p. 166.



Figure 18. Two birds in black under turquoise glaze, Mesopotamia. (Copy from Arthur Lane, Early Islamic Pottery (London: Faber and Faber, 1953), Plate 77B.)

the vessels were fabricated of coils or rings of clay and then smoothed by hand. Some pots were pressed into molds and joined later. Therefore, the shapes do not show the symmetry or technical perfection of the works of the Old World; however, there was no standardization of form which was found in some of the early civilizations which used the potter's wheel. The methods used allowed several different approaches and the wares produced show much variety.

Porcelain was not known and glaze was not used. However, much of the work shows a glazelike effect. As Glenn C. Nelson has stated:

To look at many of the Mochica or Nazca pottery pieces with their variety of pastel hues, one would never believe that the New World Indians did not use a true silicious glaze. Their glazelike effects were achieved by the application of several coats of a finely ground slip which was later burnished when leather hard. The fine particle size, plus the forcing together of the clay mass, causes the clay molecules to fuse slightly in firing, thus producing a surface similar to a mat glaze. Of course, the ware was not waterproof.¹

Since so much of the work is of a sculptural or portraiture nature, only a few types will be mentioned here. The human figure is used extensively as a decorative element but one is interested here only in the organic forms other than those of human origin.

Motifs which were commonly used by the Indians of the

¹Ibid., p. 163.

Southwest include abstract designs of birds, reptiles, fish, butterflies, and moths. These were usually executed by stamping, incising, or painting.

The work of the Mimbres in New Mexico is outstanding in this region and deserves more attention. Although they dwelt in pit houses they reached a high achievement in artistic realms. The motifs they used were not meant to be naturalistic representations but to serve as decorative and story-telling motifs. "Besides the human figure, birds, deer, antelope, dogs, rabbits, fish, insects, and reptiles are used, as well as fabulous creatures who step out of the fantasy-world of these potter artists."¹ The figures are painted in black on a whitish slip.

Figure 19 shows a Mimbres bowl with a stylized swallow whose bill is drawn in profile. The bird is surrounded by a swirling cloud-like motif which helps give the bird a soaring feeling.

A humorous design is seen in the buzzing mosquitoes around a bowl as shown in Figure 20. The design shows a swarming movement from any side.

The bowl with the four grasshoppers as shown in Figure 21 shows a treatment which is not strictly naturalistic but which does capture the restless feeling of the grasshoppers.

¹Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), I, 160.

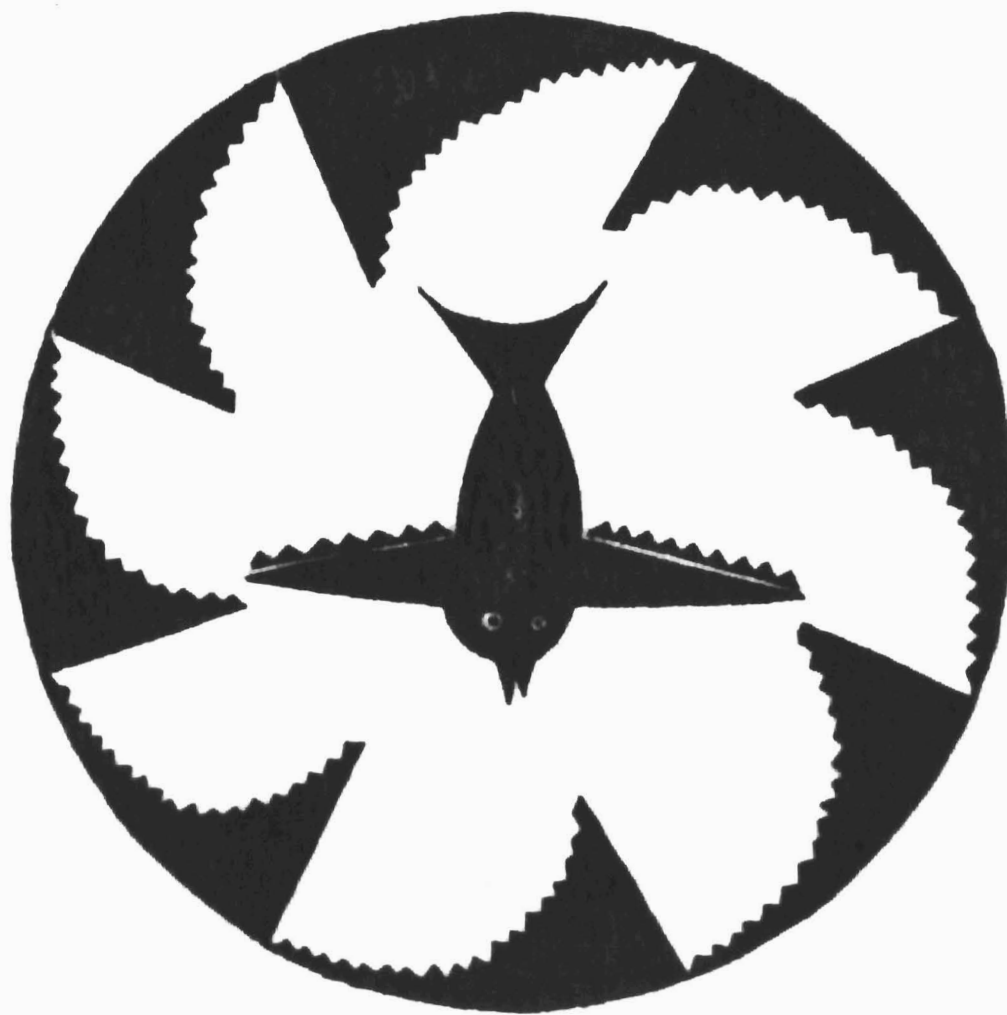


Figure 19. Swallow on Mimbres bowl. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 106c.)

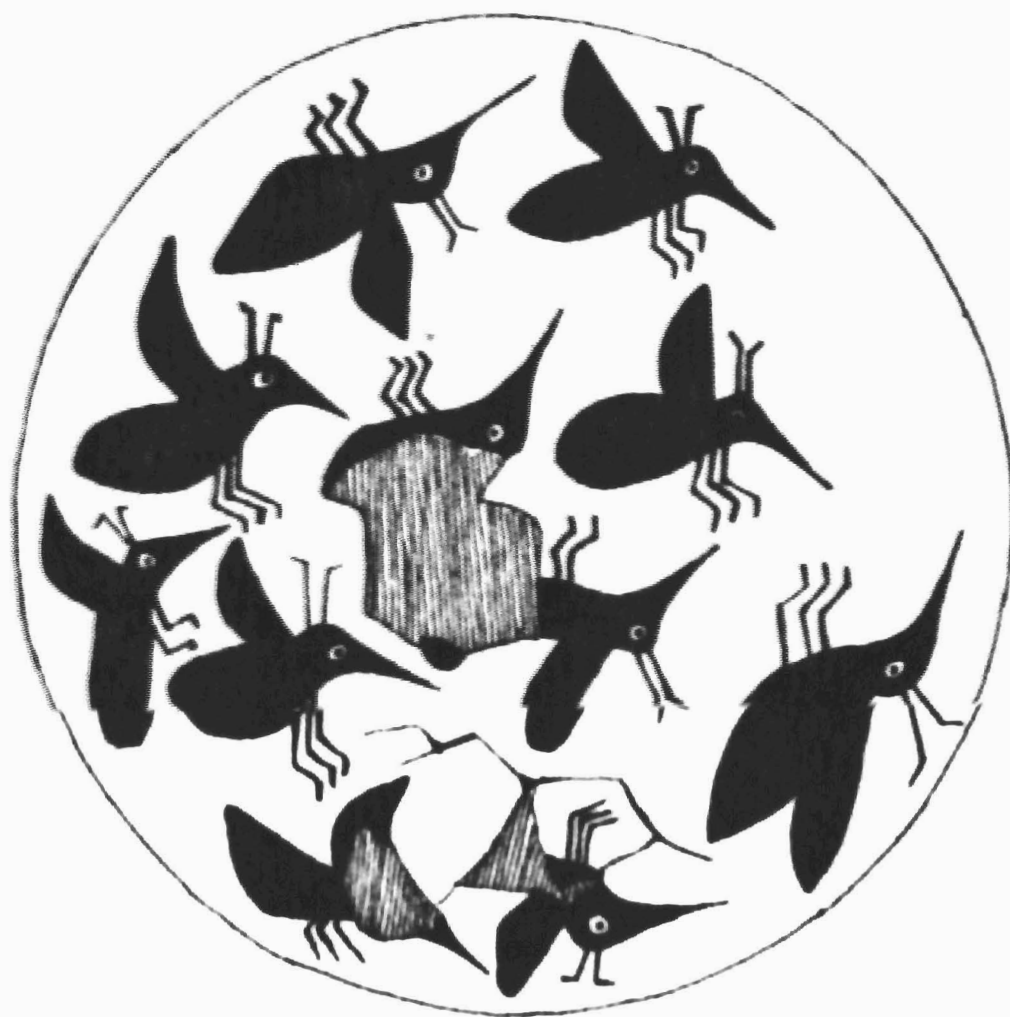


Figure 20. Mosquitoes on Mimbres bowl. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 106d.)

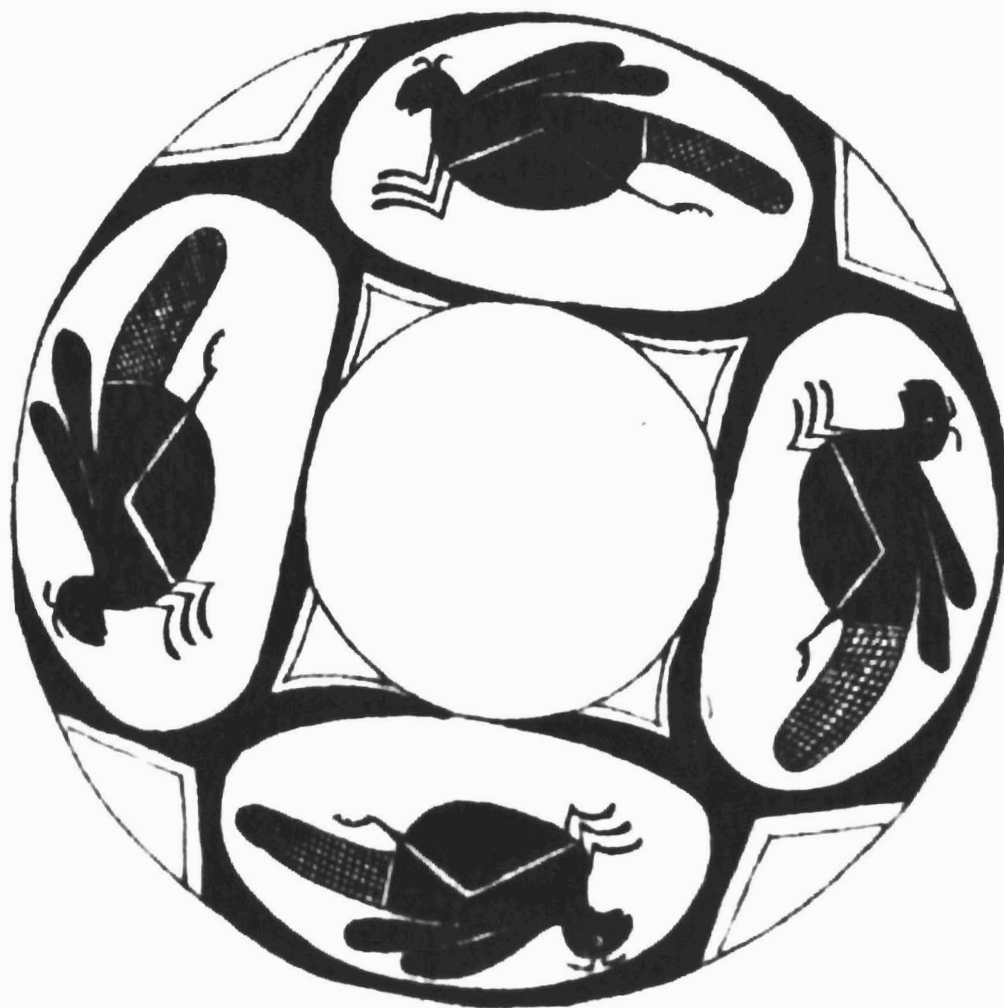


Figure 21. Grasshopper motif, Mimbres bowl. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 106f.)

The turtle motif, Figure 22, shows square meanders around the shell and wavy lines to show the neck. The wavy lines help to suggest a floating motion across the plate. Most of these vessels were "killed" by punching a hole through the middle before placing them in the grave which has impaired their appearance.¹

In the Mexican region a greater versatility was shown in the handling of clay. They made not only utilitarian vessels but also little effigy figurines. Some vessels were shaped to produce vases which represent organic forms, such as the fish. This is shown in Figure 23 as the fish vase from Tlatilco.²

Motifs of the butterfly, serpent, snake, and human figure were used on pottery vessels. Various techniques of decoration were employed. Some were painted with a slip of one color and burnished. Other vessels were incised either before or after firing. Sgraffito was used on some. A technique of negative painting using hot wax to paint in the design, then covering it with pigment, and finally removing the wax by firing was also used.³

In the Mayan area one of the greatest achievements was the painted pottery. "Vessels of fired clay. . .were

¹G. H. S. Bushnell and Adrian Digby, Ancient American Pottery (New York: Pitman Publishing Corporation, [n.d.]), p. 9.

²Ibid., p. 13.

³Ibid.



Figure 22. Turtle on Mimbres plate. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 106e.)



Figure 23. Black fish vase, Mexico. (Copy from G. H. S. Bushnell and Adrian Digby, Ancient American Pottery (New York: Pitman Publishing Corporation, [n.d.]), Plate 12.)

covered with a thin coat of stucco and the smooth inviting surface then decorated with painted figures and glyphs, frequently of story-telling character."¹ In addition to human figures, such animals as the jaguar, fish, serpent, and quetzal bird were used as motifs on the painted ware. The quetzal bird is shown in a decorative style which is not realistic in Figure 24. The plumage was designed to fill the area between the two bands in an artistic manner. The Mayan potter also used relief decoration in a satisfying manner. Birds, jaguars, water-lilies, and deities were decorative elements.

An entirely different style of pottery is found in the work of the Mochica and Nazca potters in the Andean area. The Mochica ware shows a story-telling quality. The portrait jar, whistle jar, and a vessel with a stirrup spout are common Mochica forms. Parrots, owls, ducks, crabs, fish, frogs, llamas, and plant forms are used as motifs as well as human figures. However, most of their work is more wholly sculptural than merely decorative. The work of the Nazcas shows less modeling and depends more on painting for the expression. Fish patterns, plant motifs, and stylized birds, mice and cats are seen on their vessels.² The tail

¹Kelemen, op. cit., p. 177.

²Bushnell and Digby, op. cit., pp. 34-36.

on the fish shown in Figure 25 was pulled around so that it would fill the area in an artistic manner. This is an example of a Nazca painted ware.

The study of the works of the earlier civilizations has revealed a very important principle concerning decoration. A poor form can never be improved even by using a striking decoration; instead, the decoration can serve only to enhance the beauty of the form. Likewise, any decoration which is applied must be adapted to the form rather than the form being a background for the decoration. As has been seen in the periods of decadence of some civilizations, such as the Greek and Chinese, the quality of the forms became inferior when the pottery became a medium for pictorial painting.

Those designs which were interpretations of the patterns of nature were more successful than those which were mere realistic renderings of the subject matter. Whether the interpretation is geometrical, stylized, or abstracted it is usually more successful than those which are merely copied from nature.

The natural forms were adapted to the various decorative techniques available to the potter. Some became linear renderings, some reduced to a pattern of brush strokes, and some were boldly carved. In pottery decoration the unusual variation of the pot's contour presents a challenge not met



Figure 24. Quetzal bird, Maya. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 131c.)



Figure 25. Fish on Nazca plate. (Copy from Pal Kelemen, Medieval American Art (New York: The Macmillan Company, 1944), II, Plate 163b.)

by those who decorate plane surfaces such as the painter or print-maker. The decoration may expand or recede to fit the pot. Areas may be broken up by concentric lines on plates tending to make the plate appear smaller; radiating lines increase the size. Horizontal lines on cylinders may make them appear to be shorter; vertical lines will emphasize the height; diagonal lines heighten the dynamic quality.

CHAPTER III

DEVELOPMENT OF NEW MOTIFS

When one searches for decorative motifs based on patterns in nature one begins by going out into nature and looking for provocative patterns in the forms of plants and animals. Sometimes the idea can be recorded with a quick linear sketch; at other times the object can be brought back for additional observation. Photographs of forms can be made for a more careful study of details. A visit to a biology laboratory can produce specimens which may not be seen in a particular locale.

Seeking the more traditional forms which have been utilized by earlier civilizations, the potter made numerous trips into the surrounding countryside looking for leaves, flowers, insects, birds, fish or other forms. Some items were collected while others were sketched.

After gathering specimens or making preliminary sketches, possible designs were drawn by simplifying, stylizing, or abstracting the pattern, trying to capture the feeling in a minimum of lines or a re-established, simplified form. These designs were then conceived as possible renderings in brushwork, slip-trailing, frisket, sgraffito, stamped, or incised decorations. However, the design could not be fully realized on paper but needed to be done

directly on the clay using the appropriate tool for it. Initial experimentation in the application of the designs to clay was done using colored engobes, or decorating clay slips, on leather-hard tiles six inches square. By working on the tile with a tool it was possible to see the actual effect of the design. However, the design still needed to be conceived as fitting a three-dimensional form. After experimenting with various methods of carrying out a motif the one which appeared to be most suitable was applied to a pot.

I. NEW ADAPTATIONS OF TRADITIONAL FORMS

The traditional use of forms by earlier civilizations generally consisted of utilizing the entire body of the subject as contrasted to the use of a particular segment which the potter will use in creating new motifs. This section is concerned with using the traditional forms in a new style.

Leaves have always served as a common motif on pottery. The shape of an elm leaf was chosen as a simple form which can very well be done using a number of techniques. In Figure 26 various techniques for executing a leaf pattern are shown. In Figure 26(a) one sees a brushwork design done in green engobe applied with a Japanese brush. A minimum of bold strokes are employed. Although this method appears to be

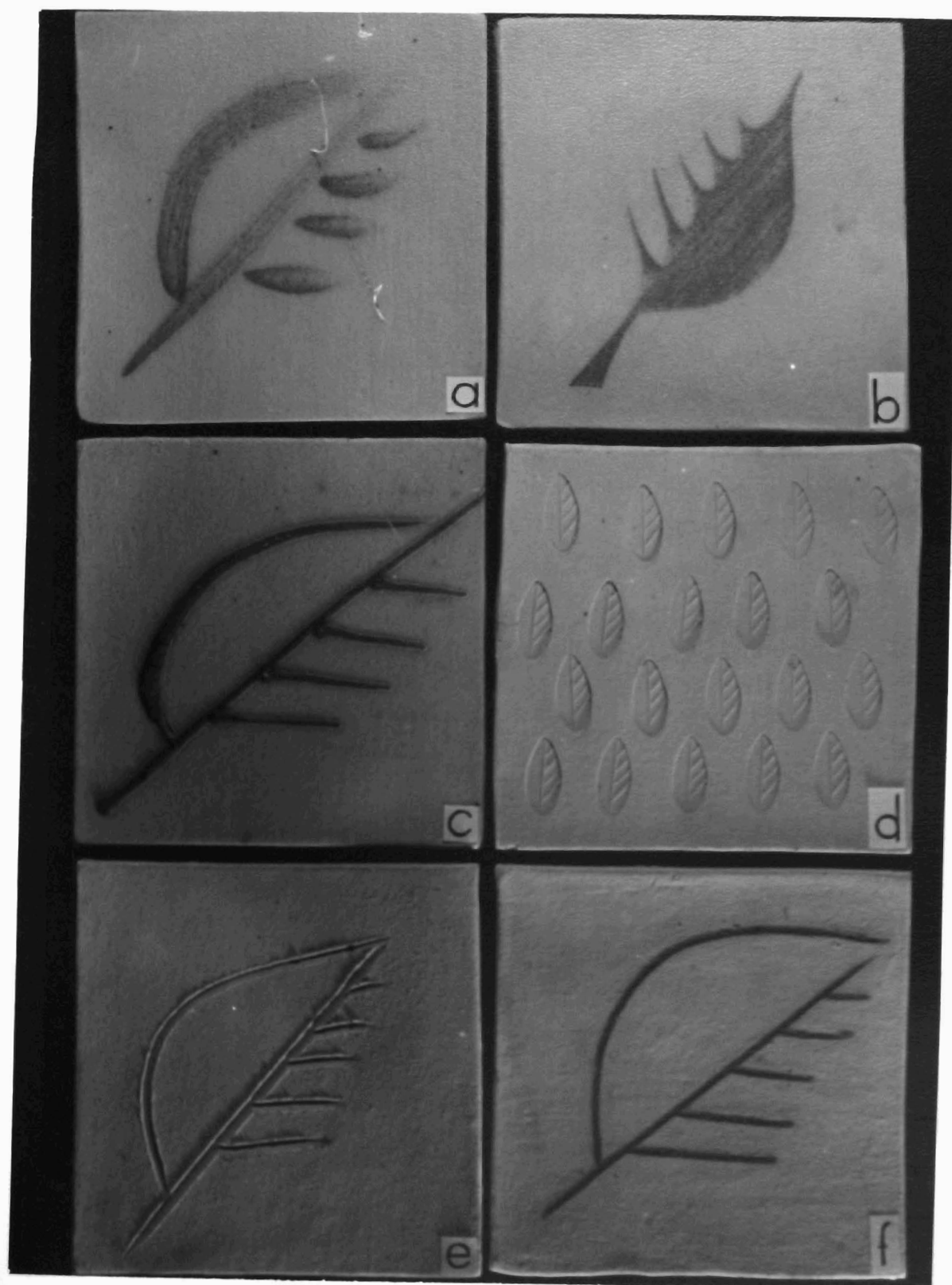


Figure 26. Leaf decorations on tiles.

simple, it requires much practice to use the brush with confidence and accuracy. There is no possibility of correcting an erroneous stroke. This design is rather large and works more successfully as a spot decoration than it would as an over-all repeat pattern. Figure 27(a) shows an adaptation of the leaf done in blue engobe brushwork to a straight-sided bowl form. Since the leaf is applied at an angle it gives a more dynamic appearance suggestive of movement around the bowl, accenting the roundness of the form.

The leaf design in Figure 26(b) is done with green engobe using a frisket. The design stencil was cut out of paper, adhered to the tile by sponging it slightly, and engobe was brushed over it and, after it dried slightly, the frisket was carefully removed. This design, in contrast to the brushwork, is very sharp in outline and the pattern is controlled and repeated exactly. The frisket design, shown in Figure 27(b), is also utilized as a spot design at an oblique angle. This design is more controlled and does not have as much freedom of the flowing lines but it does emphasize the round form of the bowl. It is executed in red engobe.

A slip-trailer was used in Figure 26(c). Green engobe was applied using a rubber-bulb. The engobe was first strained to remove any lumps. This method is similar

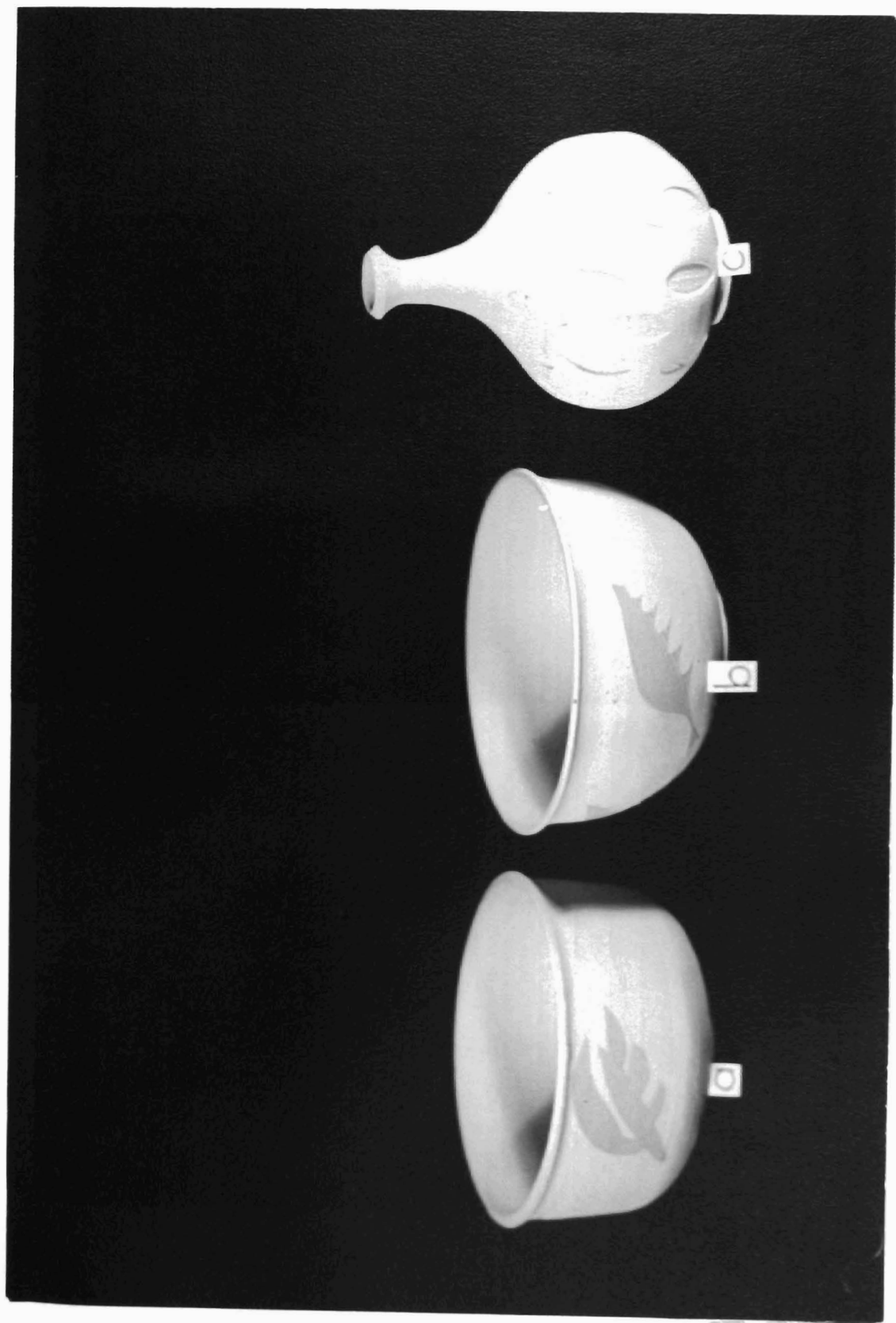


Figure 27. Leaf motifs on pottery.

to brushwork as it too requires practice to control the flow of the engobe. The lines of trailed slip are slightly raised. Minute details should not be attempted with a slip-trailer. This design too could be utilized on a spherical bowl. It could also be used as a banded decoration on a tall cylindrical form emphasizing the breadth of the cylinder.

A wooden stamp used in Figure 26(d) was made very simply by cutting half-inch doweling at an angle to give the external oval shape and incising the lines with a razor blade. The stamp is very easy to use and it gives a sharp, neat design. A small bottle form is shown in Figure 27(c) decorated with a repeat pattern using the stamp. Since this is easily controlled and a small motif it works well as an over-all design. The stamps were placed closer together at the neck and base than around the middle, thus emphasizing the constriction of the neck and base and the bursting form of the belly. This stamp could also be used as a border decoration on a pot or on the rim of a plate in a radial pattern.

An incised design is shown in Figure 26(c). This was done with a fairly blunt bamboo tool. Other tools, such as a knife or needle tool, could be used to give a different effect. The design shows a crisp line accented by the furrowed clay along the edges. The technique is easier

to control than using a brush. The design would work well as a spot design on a large cylindrical form or in the center of a flat plate. The lines are bold and definite making a simple statement which would not work in an over-all pattern but must be sustained by plain areas of the pot's wall.

Mishima, a technique of inlaying engobe, was used in Figure 26(f). The design is first cut or impressed into the leather-hard clay. Then, using a soft brush, the engobe is stippled into the lines filling them level with the surface. After allowing it to dry, the excess engobe is scraped away with a metal tool. Another method is to cover the surface with melted wax, then cutting through the hardened wax into the clay and applying the engobe. The wax resists the engobe and only the lines fill up. The wax is removed in firing producing a very neat line. The design is sharply defined against the clay surface. This design could be used on cylindrical or flat pieces where a certain amount of refinement is desired such as on serving pieces. This method produces a more refined decoration than incising because there is not the rough edge produced by the knife.

Animal forms were commonly used by early potters, particularly birds and sea animals. In Figure 28 a series of animal motifs are shown done in a variety of techniques. A bird shown in Figure 28(a) is simply stated with three strokes of the brush. The lines show a motionless form.

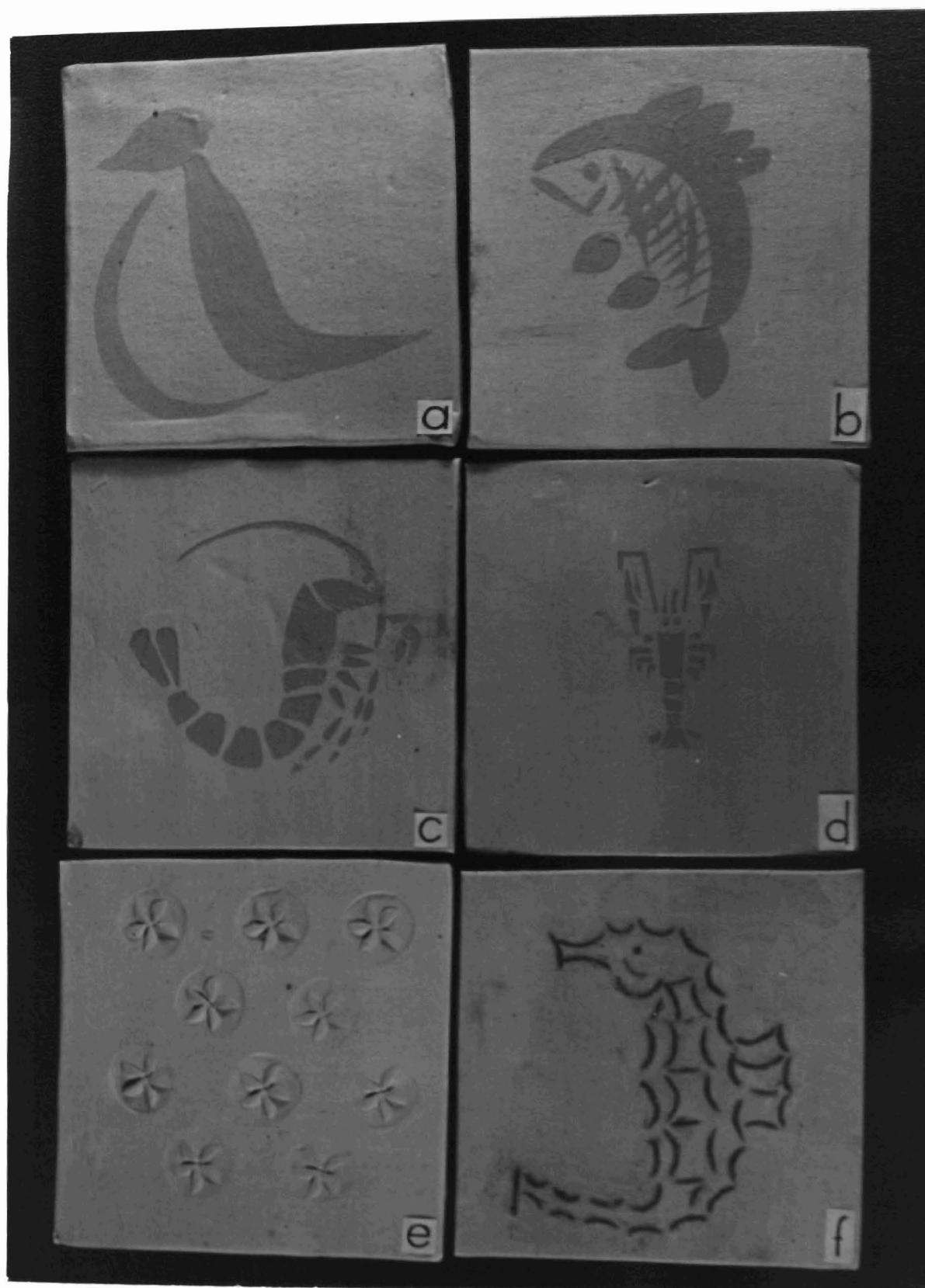


Figure 28. Traditional animal motifs on tiles.

The form could be used as a spot decoration on a spherical pot.

The fish shown in Figure 28(b) exhibits a contrasting quality. The curve of the body and the short, quick strokes give a feeling of motion. This design seems more successful than that of the bird as the fish adds a lively quality to the form of a pot. Figure 29(a) shows the leaping fish on a spherical pot. Another use of a fish motif is shown in Figure 29(b). Here, instead of a leaping motion, the succession of fishes is used as a banded decoration showing a wave or swimming motion which carries the eye around the form rather than holding the interest at one spot. The process of sgraffito was employed in this motif. Red engobe was brushed onto the vase and the design was then scratched through the engobe exposing the clay body.

The photograph in Figure 30 shows a dorsal view of a crayfish. The segmented appearance of the jointed body and appendages suggests the use of a frisket to execute the motif as it allows much control over the design. Figure 28(c) shows the crayfish with a suggestion of swimming motion. The circular pattern set up by the antennae and body would adapt this form for use in the center of a plate. Quite a different feeling is achieved in Figure 28(d) where the crayfish is in a static position. A frisket was again used with blue engobe to show the segmental characteristics of the subject. The vessel shown in Figure 31 is decorated

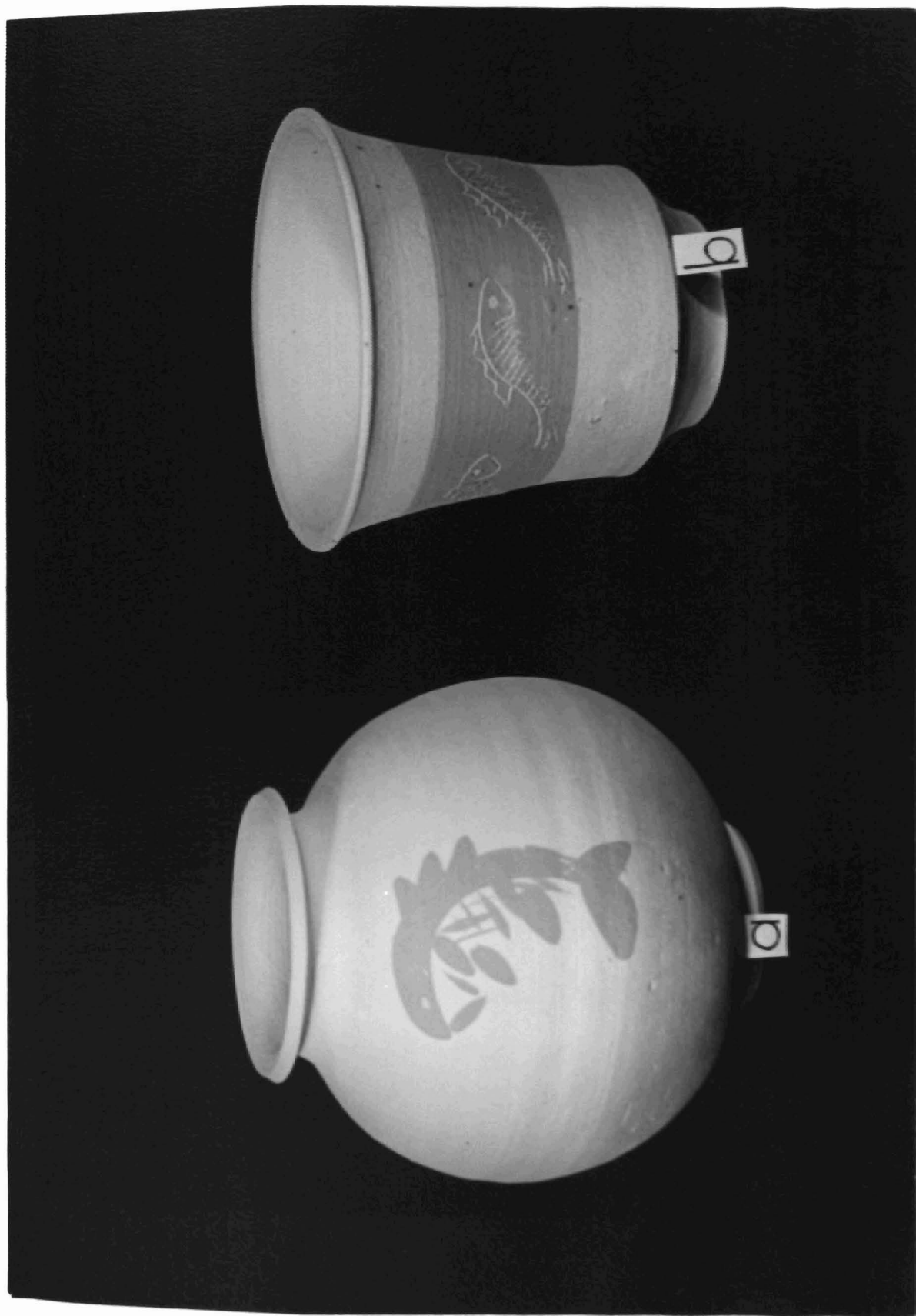


Figure 29. Pottery with fish motifs.



Figure 30. Crayfish. (Reproduced from Turtlox News, XXXIX, No. 5 (May, 1961), 140.)

with three crayfish done with a frisket using blue engobe in panels separated by areas of texture. The division of the vessel into a series of panels makes it appear to be smaller.

A starfish, whose pattern shows radial symmetry, can effectively be utilized as a circular stamp showing the arms. A repeat pattern using the starfish stamp is shown in Figure 28(e). The stamp was formed out of clay and fired. The design could be adapted as a border decoration on a bottle, bowl, or on the perimeter of a plate.

Figure 32(a) shows a seahorse. The irregularity of the surface of the body suggests using it as an incised design. The technique of mishima can well be employed in this motif. It is shown in Figure 28(f). The scalloped lines give it a lively feeling. Since the design is rather intricate it would give a cluttered appearance if repeated too often on a vessel. Therefore it works most effectively as a spot motif.

Figure 32(b) shows a sea horse executed in mishima using red engobe on a spherical pot. This design would have been more successful if wax had been employed because in scraping away the excess engobe the surface of the pot was marred.

The sea urchin, Figure 32(d), shows an intriguing pattern on its dorsal side. This design adapts well to use as a stamped decoration as shown in Figure 32(c). The

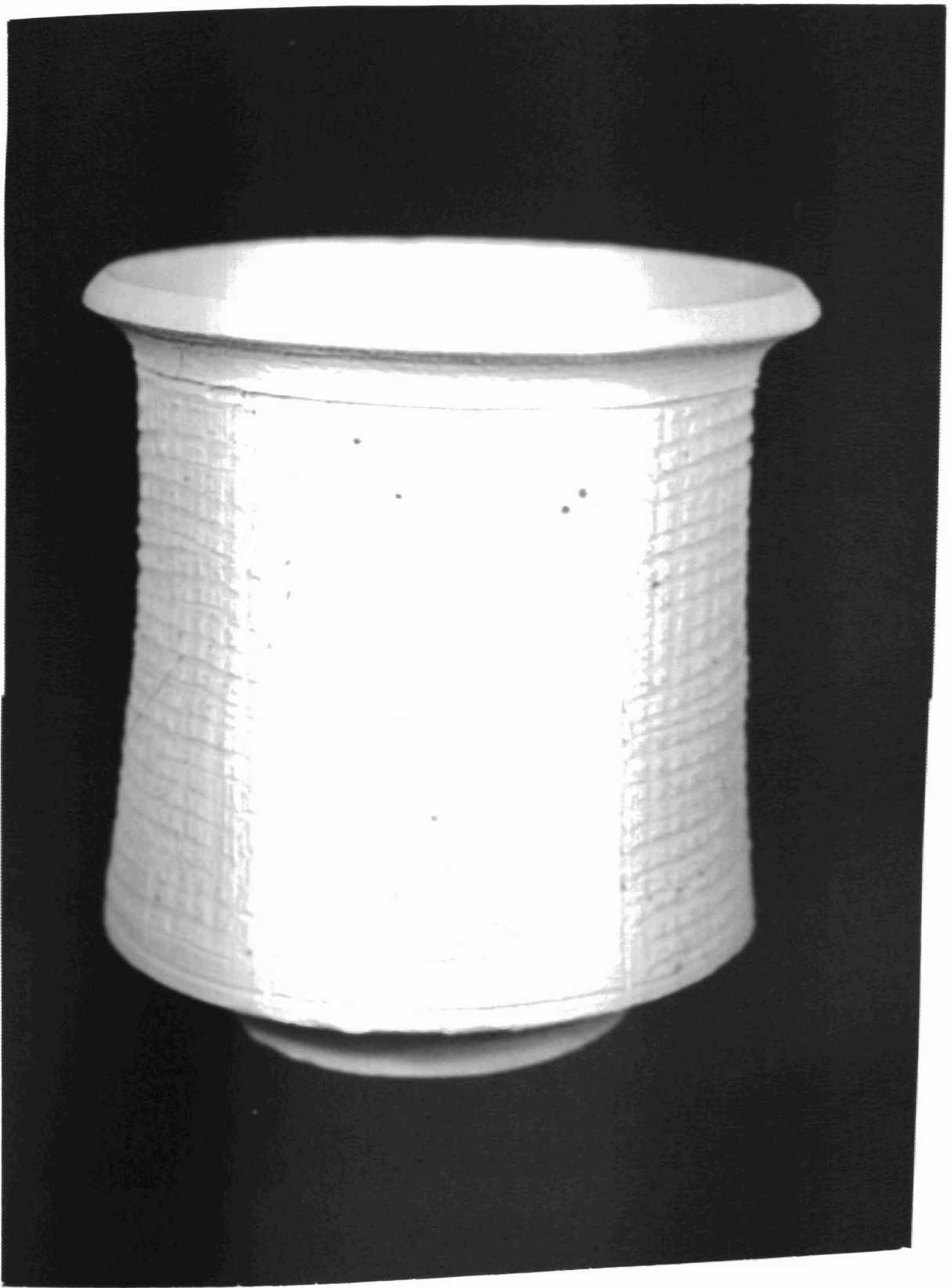


Figure 31. Crayfish motif on vessel.

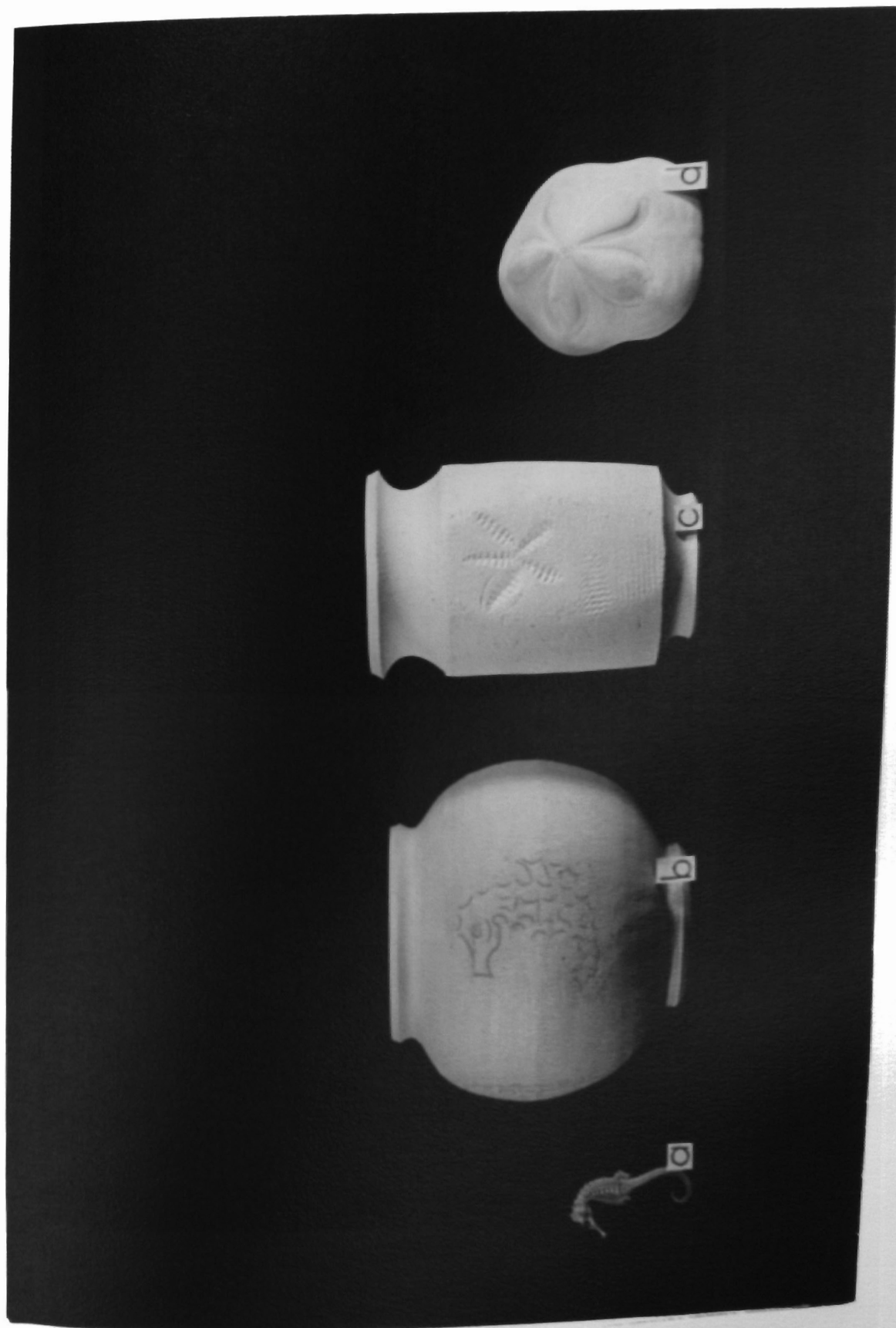


Figure 32. Organisms and decorations of Sea Horse and Sea Urchin.

straight-sided form was paddled to produce a four-sided pot showing a slight texture in the background resulting from the string-wrapped paddle. This contrasts with the texture of the motif to produce an interesting decoration.

Another type of decoration which was practiced by the Indians tends more toward a sculptural nature than merely decorative. However, it can be employed as a decorative technique on a vessel form. Figure 33 shows two adaptations of bird forms to vessels. On the left an owl motif is employed. The face is decorated by adding a beak and by impressing pellets of clay for the eyes. To add interest to all sides of the pot a few flowing lines were incised to indicate wings. The remainder of the surface was textured with the point of a can-opener to give a feather-like texture. The bird pitcher on the right is a very simple adaptation of a pitcher. Two pellets of clay were applied at the sides of the spout transforming the spout into a beak and the pellets becoming the eyes. The neck was banded with three lines of white engobe and a circular spot of engobe was applied to the belly. Three pulled appendages were added to become the legs and tail. The stamped decoration to the body gives an impression of feathers and carries interest to all parts of the pitcher.

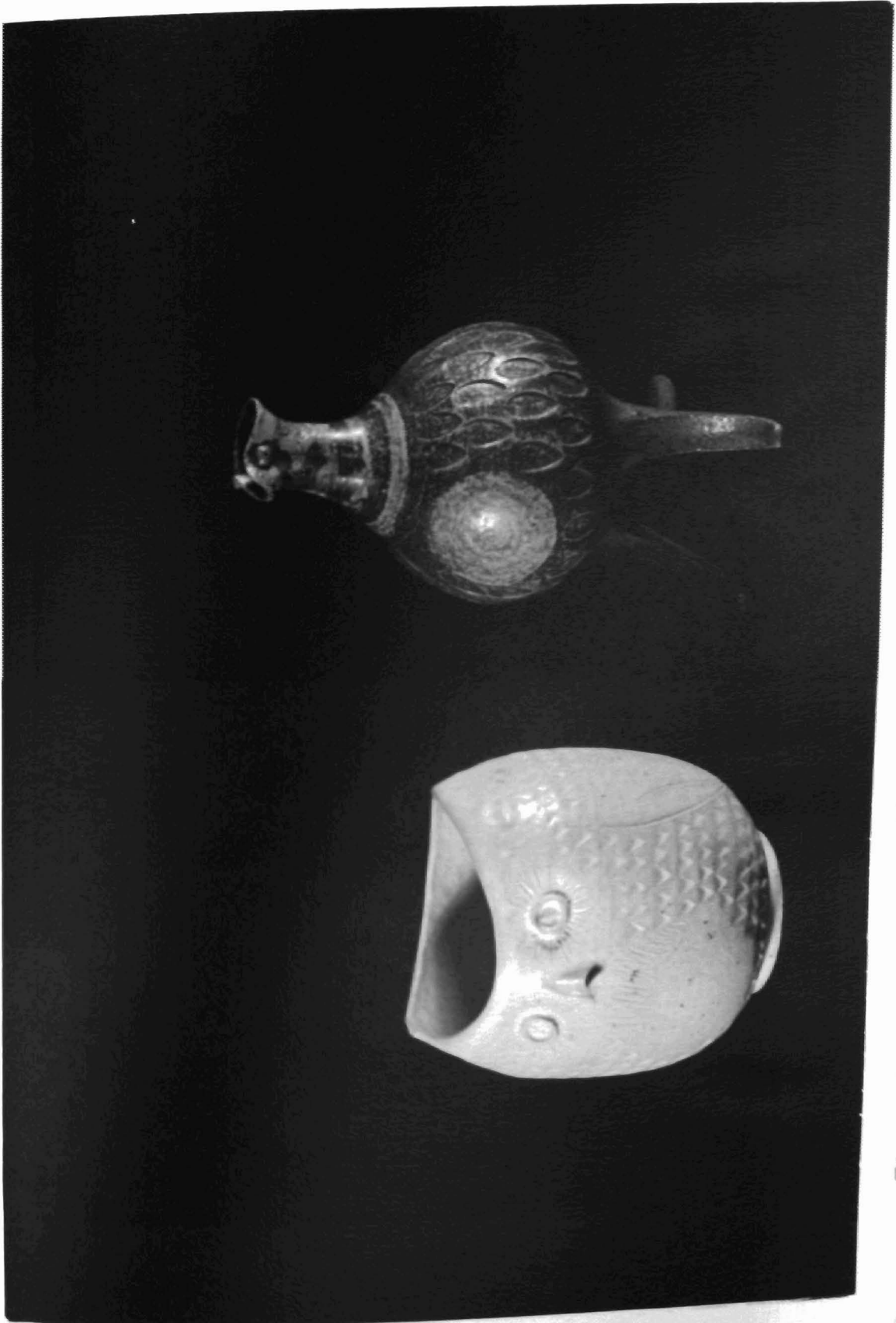


Figure 33. Owl bowl and bird pitcher.

II. ADAPTATIONS OF NEW MOTIFS

Motifs which have been utilized in the past have generally consisted of an entire organism. In search of new motifs the potter looked to the field of biology for internal parts of flowers, cross-sections through stems, and various microscopic organisms. Potters have always worked with the techniques and motifs available to them. This potter feels it is important for the potters of today to utilize the achievements of the field of microbiology. The scientists have opened up an entirely new world of patterns which can be used.

Stamens and pistils of flowers offer a possibility of a brush-stroke motif. Figure 34(a) shows a simplified form of the flower parts in brushwork using blue engobe. One sweeping stroke indicates the sepals, several strokes are used to show the filaments of the stamens and quick strokes with the tip of the brush to show the anthers. This motif could be used on a large, spherical pot in a spot design. It could be used in two variations with different effects. By lengthening the vertical strokes it would emphasize the height of the pot; if the horizontal stroke predominated the pot would appear broader.

The dandelion seed shown in Figure 34(b) was executed with a slip-trailer using green engobe. The feathery effect

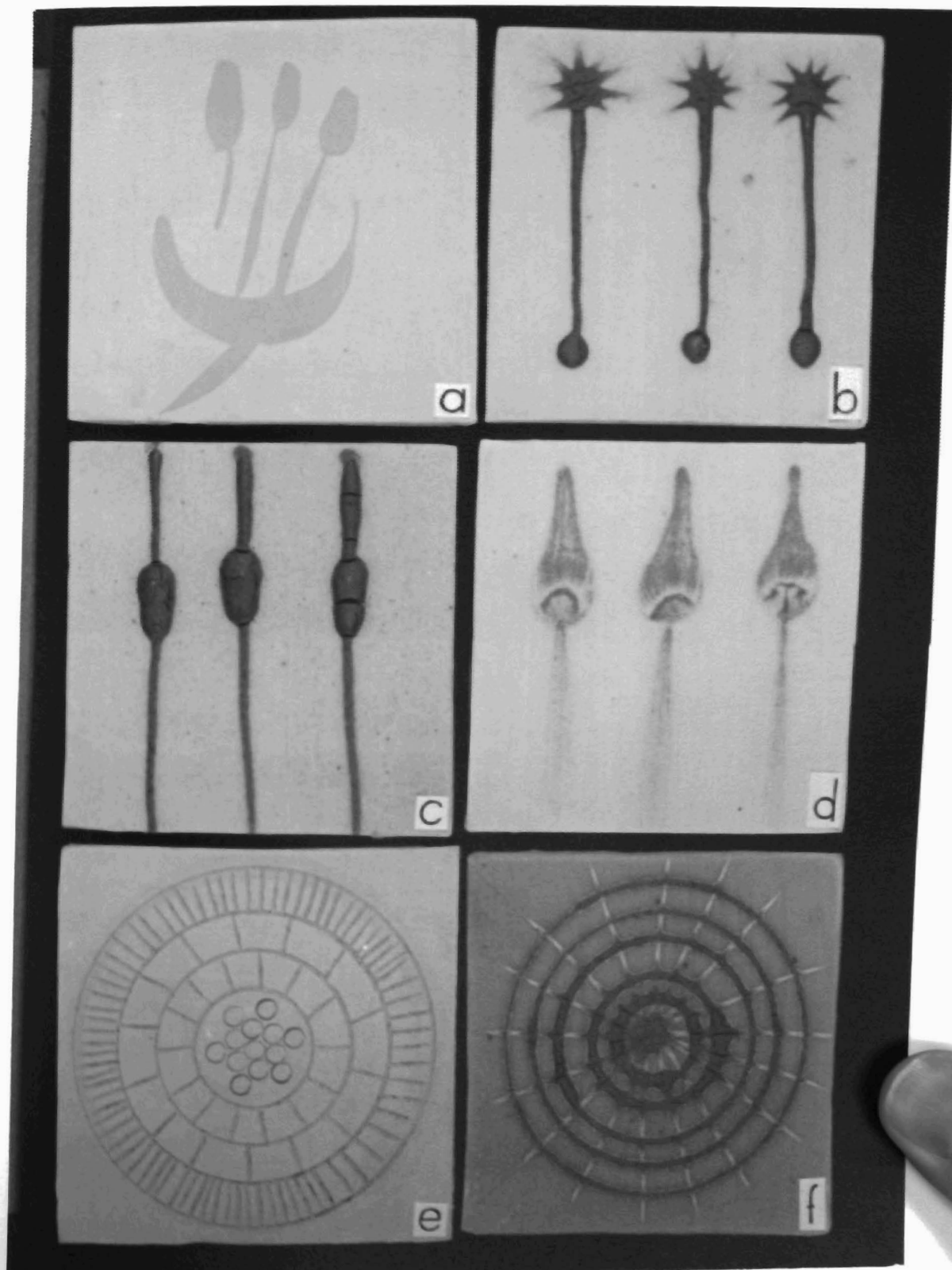


Figure 34. Tiles with new motifs.

was achieved by combing out the slip using a needle tool. This motif could be applied to a cylindrical vase. The vertical lines of the design would emphasize the structural lines of the pot and cause it to appear taller.

Galls found on the stems of plants can be employed as motifs in various ways. Figure 34(c) shows the galls done by slip-trailing. This technique presents a problem because the engobe was built up to indicate the shape of the gall and it cracked in drying and firing. This could be remedied by making an engobe with calcined clay or fine grog. The next use of the gall shown in Figure 34(d) was more successful technically because the design was applied with the brush using just a thin layer of engobe. Another way of executing this motif is shown in Figure 35. The pattern was incised into the cylindrical vase. Here one sees the vertical lines emphasizing the structural form of the vase. Another use of this design would be to use horizontal lines banding the pot making it appear to be shorter.

A cross-section through a woody stem presents a pattern whose lines are formed by the various tissues of the stem offering a radially symmetrical pattern which is interpreted in Figure 34(e). Sgraffito is employed to show the fine lines through the red engobe. This design offers an over-all pattern which can be used either as an external or internal decoration on a pot. Figure 36 shows a large

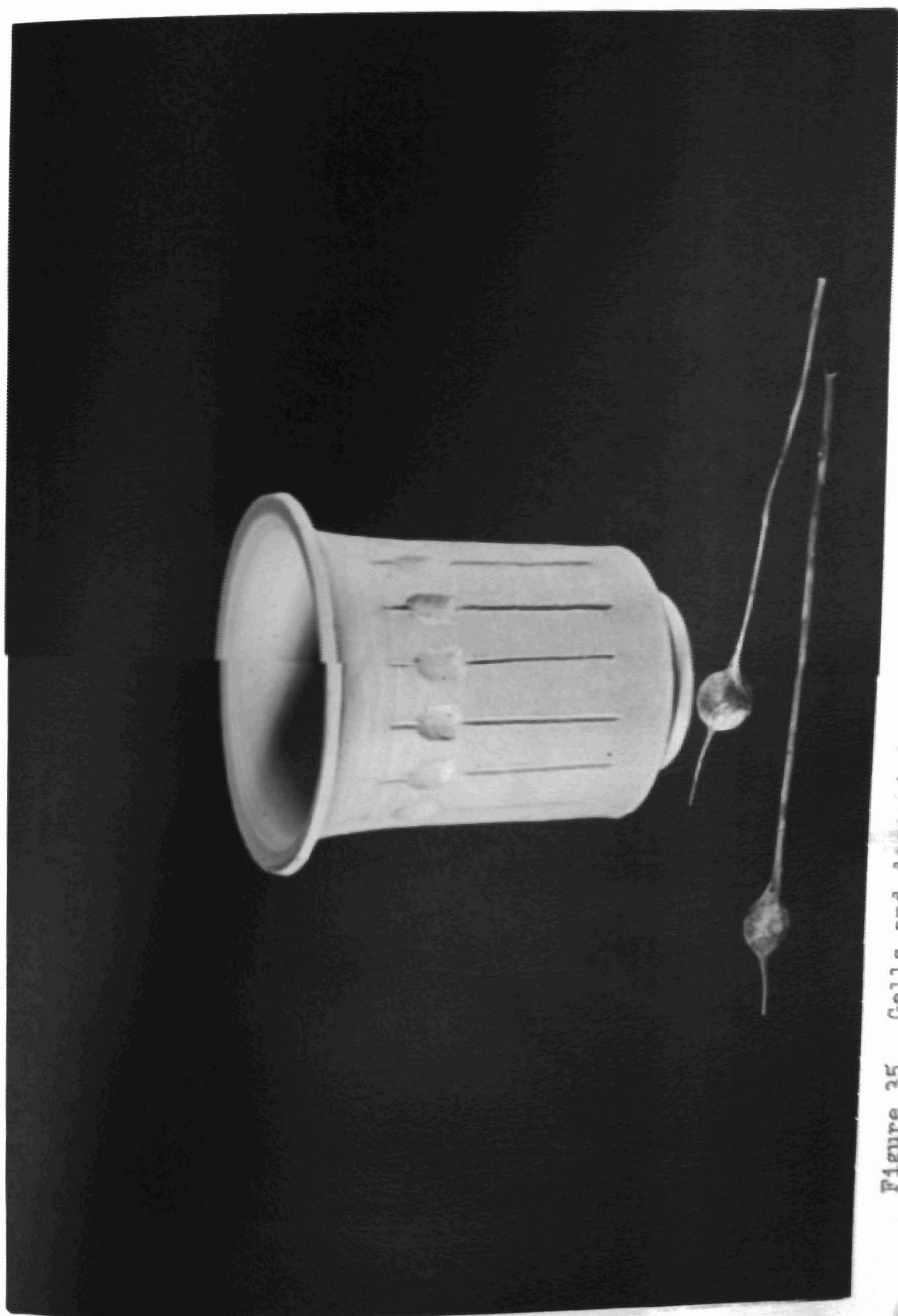


Figure 35. Galls and decorated pot.

bowl form decorated on the inside with the sgraffito design of a woody stem. The circular horizontal lines banding the pot and the straight radiating lines work together to emphasize the bursting appearance of the form. Figure 37 shows a bottle form decorated with a variation of the same motif. Here the central circles form a band around the middle of the bottle and the horizontal lines above and below the center carry the eye around the spherical form. The vertical lines come closer together near the neck and base and emphasize the constriction of these areas.

The deposits of silica in the cell walls of diatoms present a very delicate and beautiful pattern as seen in the photograph in Figure 38. The lines of the pattern can very well be adapted to a circular motif as shown in Figure 34(f). Slip-trailling was employed using green engobe over a red background. After applying the circles the engobe was combed out using a needle tool. This design was used on a plate as shown in Figure 39(a). Yellow engobe was trailled over a red background. The circular bands and the radiating lines follow the structural lines of the plate and adapt themselves very well to the circular form. Another way of using the diatom motif is by allowing the natural finger ridges formed in throwing the plate to show and then adding radiating ridges. This is shown in Figure 39(b).

The texture of the scales on a pineapple offers an



Figure 36. Bowl with woody stem decoration.

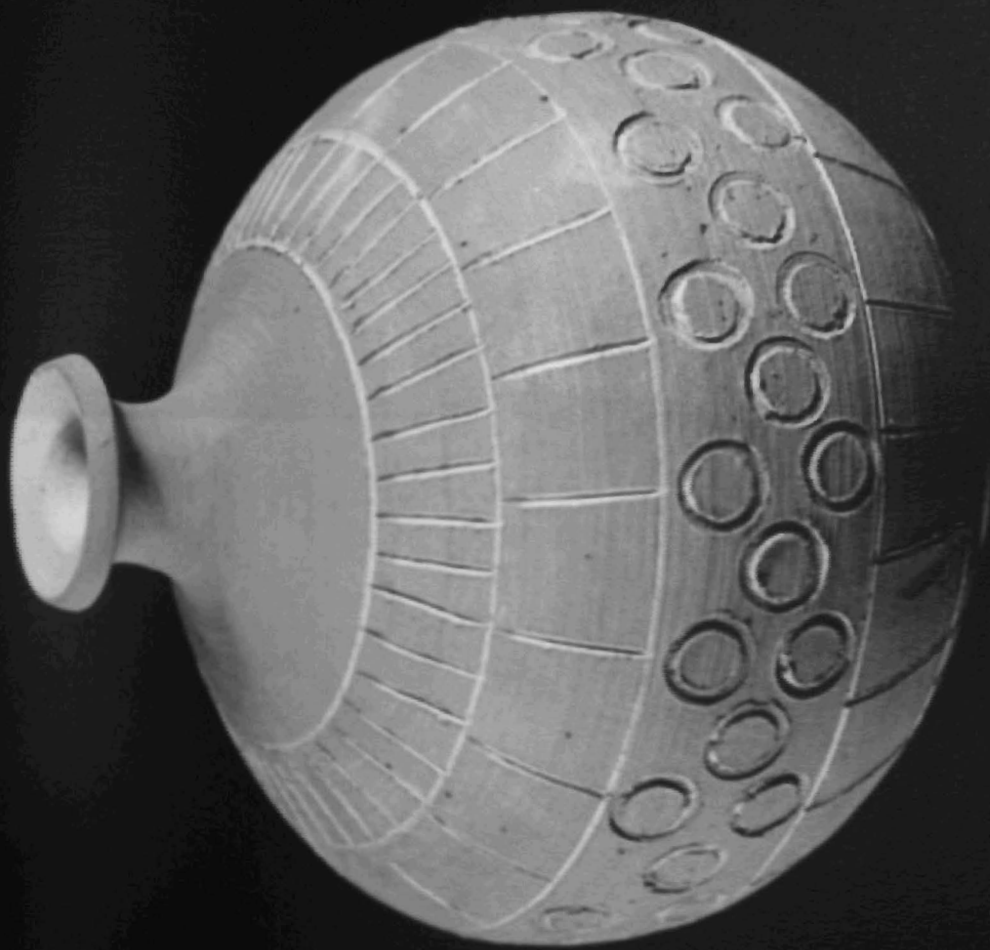
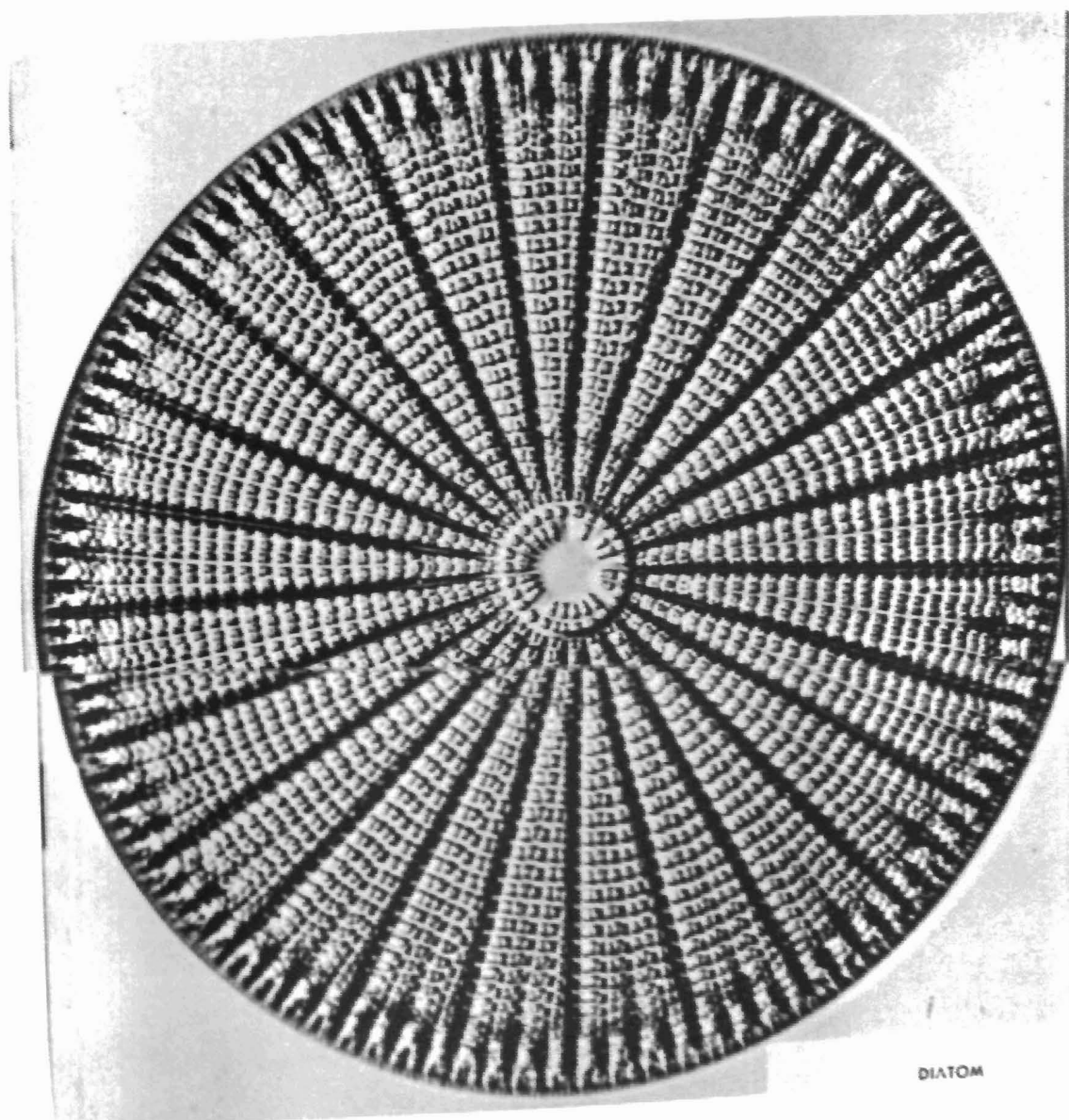


Figure 37. Bottle with woody stem decoration.



DIATOM

Figure 38. Photomicrograph of Diatom. (Reproduced from Turtox News, XXX, No. 9 (September, 1952).)

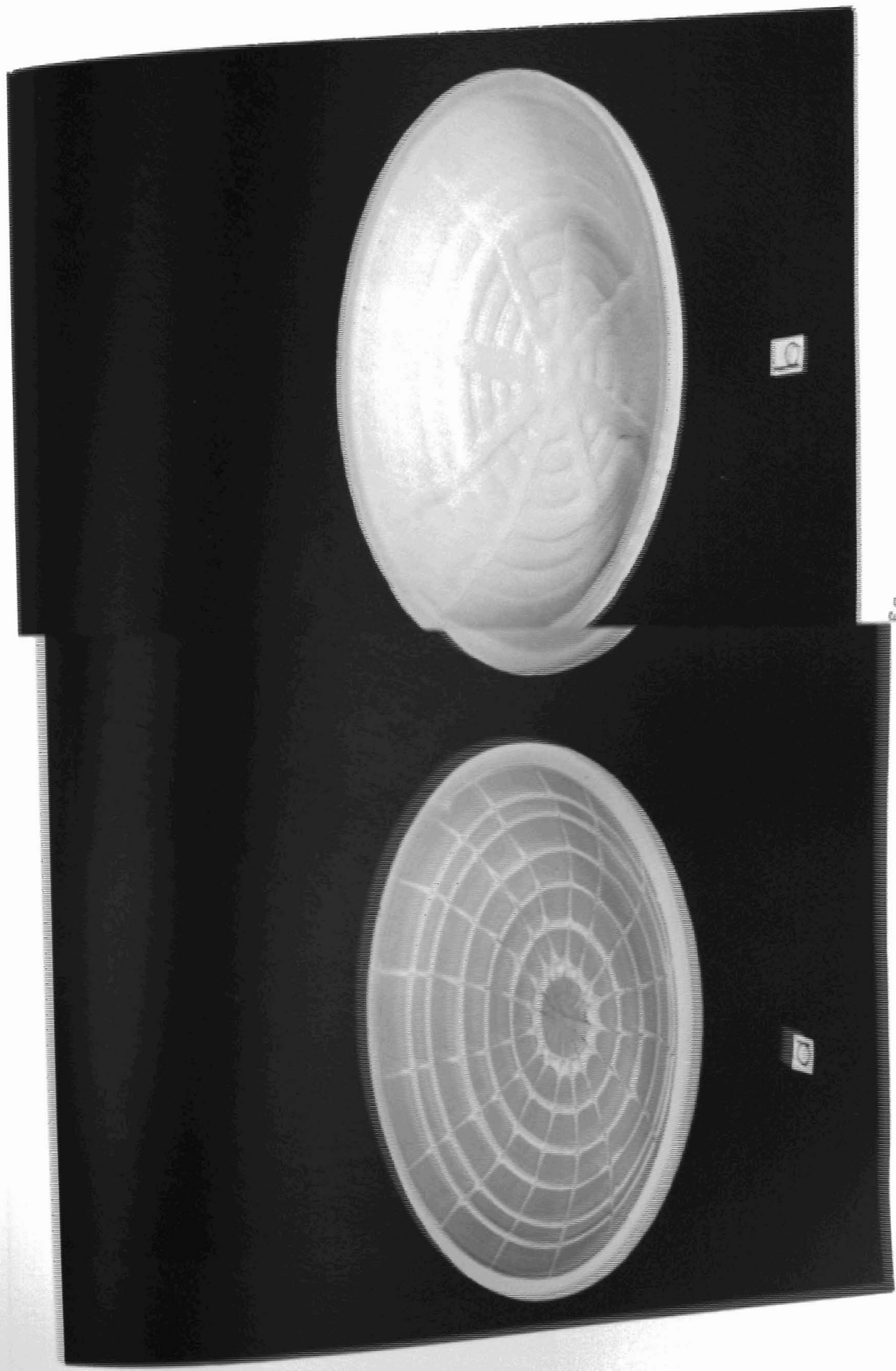


Figure 39. Plates with Diatom motif.
f.s.

interestingly imbricated pattern as seen in Figure 40. Figure 41 shows a bottle form decorated with a repeat pattern using a stamp. The hexagonal stamp works best in a pattern where the sides are placed adjacent to each other giving a scaly appearance to the bottle.

III. DIRECT USE OF THE NATURAL FORM FOR DECORATING

Another approach to decoration is the use of some part of an organism directly as the decorating tool rather than just the subject of the motif.

The scales of a pine cone create an interesting texture as shown in Figure 42. By using a scale as a stamp a textured appearance can be achieved which resembles that of the cone. The bowl form shown was stamped with a scale in a random over-all pattern.

The spike of plantain creates a finely textured line when impressed into a form. The spike and the vase are shown in Figure 42. Here the design is used simply as two bands with vertical connecting lines.

Grasses can be employed as a natural frisket. The shape of the leaf is similar to a brush stroke; however, the technique employed renders it in reverse as the clay body shows in the shape. Discretion should be used in the selection of the leaves and arranging them as a spot design so that the design does not look like something accidentally



Figure 40. Pineapple texture.



Figure 41. Bottle with texture of pineapple.

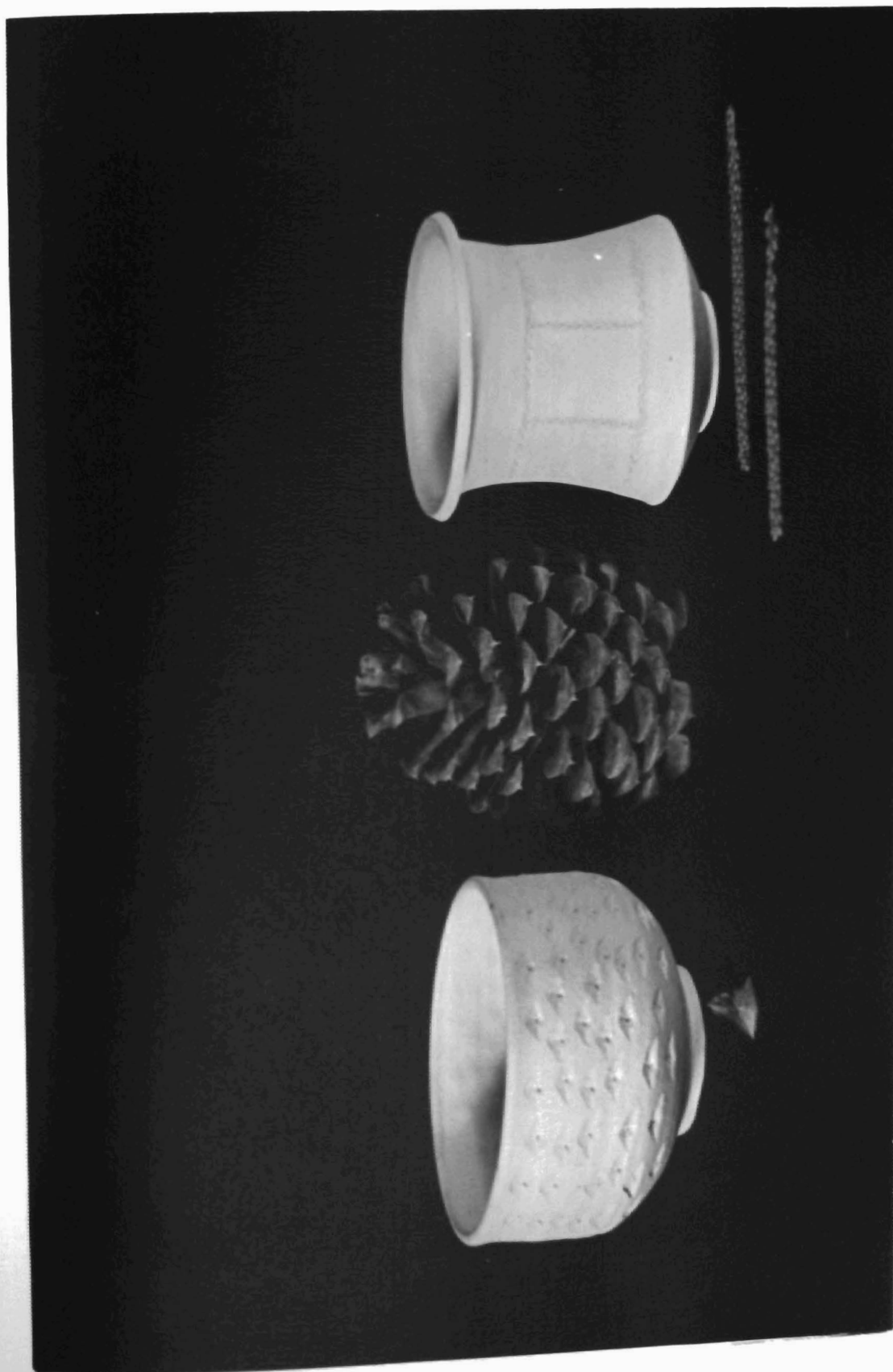


Figure 42. Pine cone, plantain spike and decorated pottery.

picked but should be arranged in a sensitive manner, Figure
 43 shows a bowl decorated with a grass frisket.



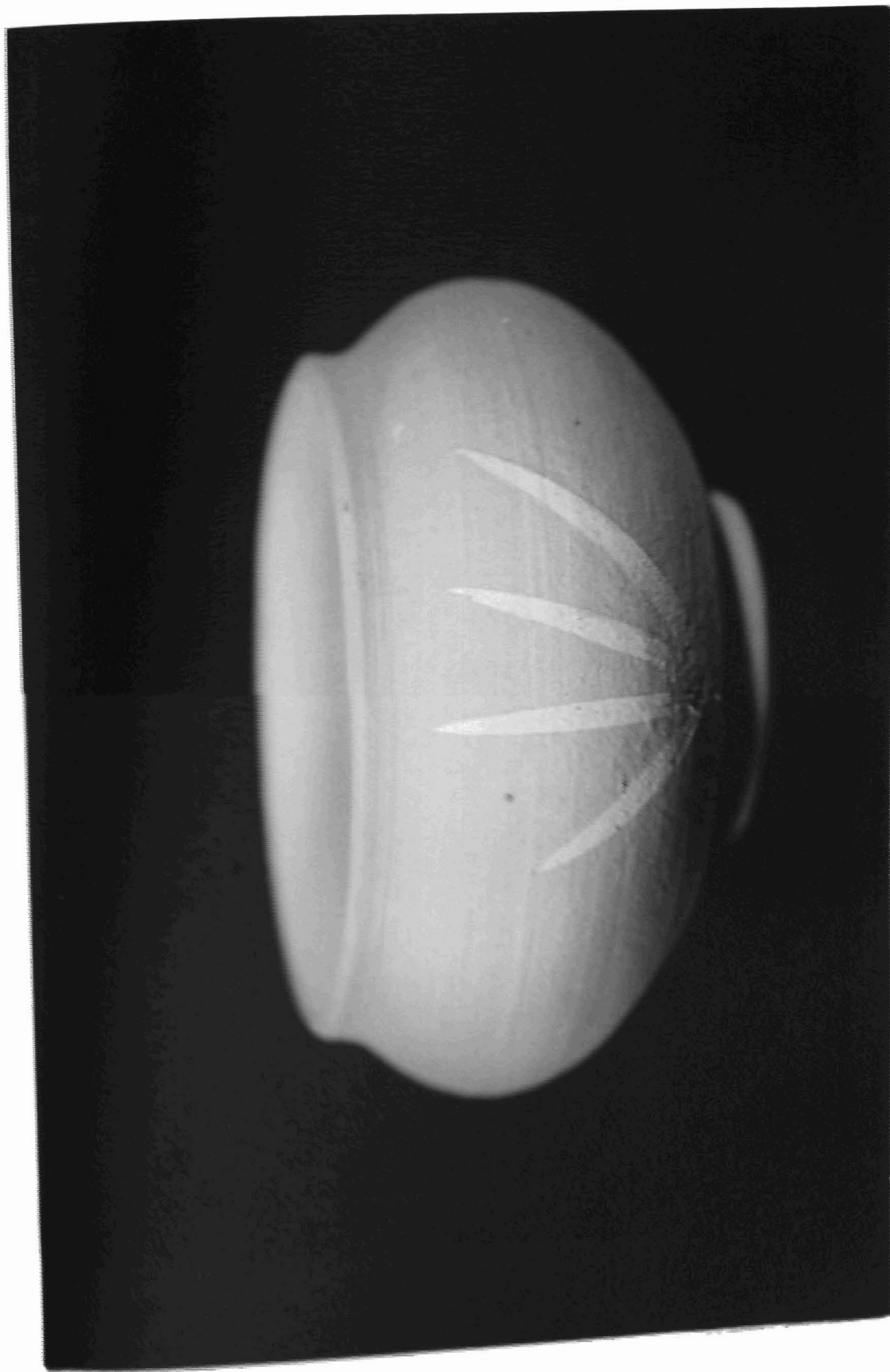


Figure 43. Bowl with grass motif.

CHAPTER IV

MATERIALS AND EQUIPMENT USED

The potter had been using the clay furnished by Drake University and was pleased with the results achieved with it throughout the year. The buff color of the stoneware clay from Zanesville Stoneware Company of Zanesville, Ohio, offers a neutral background for the red, blue, and green engobes used in the decorations. Red iron oxide was added to some of the clay giving it a reddish color.

The engobes used were those available to the class.

The formula for the basic engobe is as follows:

China Clay	25 parts
Ball Clay	25 parts
Feldspar	25 parts
Flint	25 parts
Magnesium Carbonate	5 parts
Colemanite	5 parts
Zircopax	5 parts

The colorants which may be added are:

Blue	Cobalt oxide
Green	Copper oxide and some nickel oxide
Red	Red iron oxide
Yellow	Yellow stain

Since the decoration was treated on the raw clay body the glazing is not an integral part of the decoration. However, glaze does change the appearance of the motif, usually making it more subtle; on the other hand, it intensifies blue engobe. A transparent glossy glaze and a semi-transparent

mat glaze of the potter's formulation have been used on the decorated vessels. The formulas for these glazes appear in Figures 44 and 45.

Various types of decorating tools were employed. These are shown in Figure 46. From left to right are shown: frisket, jack-knife, can-opener, Japanese brush, slip-trailer, stamp, needle tool, incising tool, wire loop tool.

The tiles were made simply by rolling them out with a common household rolling-pin and cutting them into six inch squares.

Some pots were thrown on the Advanced Kiln Company electric wheel and others on the Netherby kick wheel. All pots were formed on the kick wheel. The pots were decorated on a banding wheel or on the kick wheel. Glaze chemicals were weighed out using an Ohaus gram scale.

Bisque firing to cone 05 was done in an Amaco electric kiln at the Indianola Junior High School. The glaze firing to cone 7 was done in the Paragon electric kiln at Drake University.

RO(P.O)	KNO ₃ .2	CaO	.H	ZnO	.2	BaO	.2
R.O	Al ₂ O ₃ .25						
PO ₂	SIO ₂ .15						

CALCULATION	.2 SPAR	.4 WHITING	.2 ZINC OXIDE	.2 BARIUM CARBONATE	.05 KAOLIN	.2 FLINT
KNO ₃ CaO	.2	.1	X	X	X	X
ZnO	.4	.1	X	X	X	X
BaO	.2	.1	.2	.2	.1	.1
Al ₂ O ₃	.2	.1	.2	.2	.1	.1
SiO ₂	.15	.3	.3	.3	.3	.3

BATCH	Mol. Eq.	x	Eq. Wts.	= BATCH WT.
SPAR	.2		550	110
WHITING	.4		100	40
ZINC OXIDE	.2		81	16.2
BARIUM CARBONATE	.2		197	39.4
KAOLIN	.05		258	12.9
FLINT	.2		60	12
			TOTAL WEIGHT	230.5

58



Figure 46. Decorating tools.

CHAPTER V

CONCLUSION

In any civilization which one can study, there will be examples of very sensitively used decorations on pottery. The decorations which are most successful will add lively enrichment to an already good form. Likewise, examples can be found which are insensitive and unimaginative. In the historical study the potter sought the more successful motifs and attempted to determine why they were successful.

Several conclusions can be drawn from this historical study. The better decorations made a simple statement of the motif rather than elaborating on the minute details. The potters who were interested in adapting motifs suitably to their forms generally had better results than those who merely imposed their decorations on the surface format. In the declining periods of the Greeks, for example, they became so concerned with making a realistic representation, even attempting to show depth, that the decorations no longer fit the surface of the pots but violated those external contours.

Although one can see that decorations were used for various reasons, such as story-telling or symbolism, the most successful ones were those which achieved this purpose while enhancing the form. When story-telling became the

sole basis for the decoration it no longer fit the form.

By studying how the decorations were done, what types were used and why they were utilized, one can begin to understand how the early craftsmen solved their problems. However, the potter feels that to merely duplicate what has been used is not enough. It is impossible at the time to recapture the spirit of something accomplished centuries ago in an entirely different type of civilization. There are no set rules to follow and no fixed techniques or materials to use. The only way one can find good decorations is by imagining, exploring, discovering, and experimenting.

The potter found that by using his motifs experimentally on tiles he could accustom himself to applying a certain design with a particular tool. This he found was an effective way to see how the interpretation of the motif could be adapted to clay. This offered a good solution to the necessity of experimentation without at first ruining a pot with the application of a poorly-executed design. The designs which were then applied to the vessels usually showed more finesse because of the practice.

The translation of a design to a particular type of pot showed the effect of its linear dominance in the appearance of the form. Vertical lines emphasize the height; horizontal lines broaden a form; diagonal lines show more action; lines coming closer together around the neck or foot

of a bottle emphasize the tapering shape; radiating lines make a round bowl seem to burst; and breaking a form into several areas seems to make it smaller.

In this work the potter has limited his motifs to organic forms. This was done to direct and limit the study. The human form was eliminated as it is objectionable to some people to see the human figure used as a decoration on pottery. Other organisms such as insects, spiders, and snakes were also purposely omitted as most people would not consider such a motif as being pleasant to look at. However, some of the patterns seen on portions of these organisms could be adapted in pleasing motifs.

Even though the potter has limited his subject there is much more which could be included. The potter feels he has just begun to study decorations and that there are countless opportunities for future consideration.

The field of microbiology affords many more intriguing patterns. Instead of using the pattern of a natural form the texture or surface quality of the form could be used. Only a few examples of this were included but many more are possible. By extending the study into the inorganic world innumerable possibilities exist. Textures and patterns in rocks and minerals, for example, afford many potential designs.

Even though the potter definitely feels that he has

not covered all the possibilities, nevertheless he has gained an appreciation of well decorated pottery and, by constantly experimenting, he can continue to develop his abilities in decorating ceramic vessels.

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